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THE MENTAL FACTORS IN MEDICINE*

BY

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In the year 1920, at Cambridge, I had the honour to open a discussion on this subject in the Section of Psychiatry. On that occasion Sir Arthur Hurst said that the debate was being held in the wrong place—that it should have been held in the Section of Medicine. At that time it seemed an extravagant saying, and yet we are here to-day. Eighteen years does not seem so very long for the seed which Sir Arthur sowed to have grown thus high: for though we have not yet converted all the physicians we have at least been allowed to found a mission in their territory.

The Frequency of Neuroses

Approaching the neuroses as I did from the field of general medicine, it has always seemed to me of importance that they should not be regarded as belonging to one specialty. These conditions are found in people who present symptoms relating to any part of the human organism. They may be mental symptoms and resemble those of a psychosis, or cephalic and resemble those of a neurological lesion, or circulatory and be like those of heart disease, or ocular, or digestive. These symptoms may be of as great magnitude as those of physical disease. They may cripple as much as physical disease. Neurosis is the great mime, and therefore it is desirable not only that this should be recognized by every member of the hospital staff, as it probably is, but also that in teaching hospitals the person who demonstrates cases with any symptomatology whatever to students should be prepared to give or to arrange for instruction on examples of neurosis as they occur; for it is certain that unless the student receives instruction in these disorders he will be turned out an ill-educated doctor. It may be said that this is being done, that many hospitals do now teach this subject in a special psychiatric department. For many reasons this is insufficient. If it is the method employed the student gets the impression that the neuroses are exceptional happenings, to be treated only by specialists, and this is exactly the opposite of what he should be taught. The neuroses are probably the commonest single cause of ill-health; their incidence in all illness has been estimated at something between 20 and 40 per cent. by various workers in this country and America. The statistics have been summarized in an admirable paper by Bruce Pearson (1938). Therefore, throughout his clinical instruction the student should learn daily and not occasionally that neurosis is common.

Again, with regard to these disorders the psychiatrist is not the ideal person to teach. The psychiatrist is usually a man who has specialized early. He cannot be familiar with the protean forms which these conditions may take. His knowledge of the somatically presenting neuroses is apt to be mere hearsay. He is interested, so far as neurotics are concerned, with the more nearly mad than the more nearly sane. There is nothing in his study of insanity which will lead him to understand the neurotic mind more fully than will a man brought up in general medicine, and the mere fact that the cases are referred to him must lead the student to think that a specialist is the only person fit to deal with them. If this were true the number who could be treated would be negligible. If we must have specialists we were better off with the neurologists. All the useful forms of treatment of these disorders were given to us by neurologists.

Certain Difficulties

There are some difficulties in the way of making every teacher a teacher of the neuroses.

1. Physicians and surgeons have on the whole a dislike of psychology and of neurotic patients.

2. More and more the teachers of students are specialists, so that more and more students are taught very thoroughly about diabetes, pernicious anaemia, rare neurological conditions and the like, and less and less about common illnesses, and therefore they do not tend to see examples of neurosis in the wards, with perhaps the exception of gross hysterical paralysis.

3. Students are being taught both by precept and example to depend much more on apparatus and less on clinical histories and clinical signs and symptoms than formerly. That which cannot be demonstrated by apparatus tends to get neglected.

Therefore, when a student is launched into practice and finds that in a large proportion of his patients he can find nothing amiss physically he is at once confronted with difficulties, which with his present kind of education may be very puzzling.

The "Negative" Diagnosis

The young doctor, having been taught to rely so much on machinery and so little on his own powers of clinical observation and judgment, has a great deal more difficulty than had his forefathers in coming to a conclusion that a patient has nothing wrong physically. As will be emphasized later, the conclusion that there is nothing wrong physically is not the point of importance in the diagnosis of neurosis, but it is extremely important that the doctor should be able to make up his mind that there is nothing physical which can account for all these symptoms. If he has no access to the machines he may soon be quite lost. If he has access, and is conscientious, and if he pursues the matter far enough, he may in time learn from some laboratory or some specialist that a lesion of some kind, which may, however, be quite irrelevant to the symptoms, does exist; and if he has learned

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no psychology he is bound to seize on this and treat it, sometimes with success, sometimes without. Even if successful immediately he may have harmed the patient for the future by letting him think that an unimportant lesion like the one discovered could have caused so much ill-health, with its devastating corollary that one cannot take too much care of very small departures from the normal. On the other hand, after exhaustive inquiries—exhaustive especially to the patient's purse—he may be able to assure himself that there is nothing wrong physically. He will now hopefully and enthusiastically impart the glad news to the patient, but not add anything to this purely negative thing, which really conveys nothing in the way of information; and he is apt to be disappointed when the patient continues to be as ill as before, as loud in his complaints. His disappointment will probably deepen into annoyance when he hears some months later that this ingrate has been cured by an osteopath or a nature-curer or by any other of the unqualified people who take the opportunity once more to score over medical science, not realizing the vitreous nature of the houses they themselves inhabit. Our doctor may even become bitter enough to think that this irregular cure was spontaneous. There are of course spontaneous cures, but the doctor is more apt to think it for these than he does for his own.

It is fairly obvious why a purely negative diagnosis, a diagnosis that there is nothing wrong, is unlikely to help a patient. He feels ill, and to be told that these symptoms mean nothing is to infer that he is imagining them, and he knows that he is not. He is therefore driven to suppose that the doctor has not understood the case. If the doctor has been careless the patient can, of course, transfer to another, but if the doctor has been careful it may be that the only change open to him is to change the system, to go to someone who is not a doctor and who openly preaches that doctors know very little. Such a one will not make the psychological error of saying that there is nothing wrong. He will find poisoned blood, or pressure on nerves and circulation, or faulty posture, and by his certainty will inspire the patient with hope, for the time being at least. That the immediate good results obtained by these people are genuine I have little doubt; that their remote results can be good I have the gravest doubts. I am certain that their good results are due to the psychological factors of faith and hope; but faith and hope are not of themselves enough for lasting cure. I am of opinion that one of the reasons why quacks flourish is that they are better psychologists than most doctors. That is not the whole reason, which would take too long to go into, but it is an important one. These patients have something wrong, but it is not physical; it is something of the nature of mental disharmony. Most physicians will agree, but they do not teach their students how to investigate this matter as they would teach them how to investigate a cardiac irregularity.

There is, however, another and fundamental reason for the futility of regarding the neuroses negatively. When we come to examine these patients from a mental aspect—that is to say, when we take their histories—we find that their symptoms are the positive responses to anxieties, conflicts, and the like, of exactly the same order as symptoms may be the positive responses to physical stimuli. We have as a profession learned much of the action of physical irritants; we must now turn our attention to symptoms produced by mental irritants. We shall then find that there is nothing negative about the neuroses, any more than there is in physically determined illnesses.

In every case of illness there are three questions to be answered: Are these symptoms due to physical irritants, to mental irritants, or to both? No diagnosis is nearly complete till they have been answered.

The "Fancy" Diagnosis

So much for the conscientious doctor who, when this sort of thing happens often enough, may become less so. One not very good at the beginning, finding nothing that he had been taught to look for, may make a fancy diagnosis on no particular kind of evidence—a weak heart or, more fashionably just now, a gastritis. His treatment may be followed again by immediate success; neither he nor his patient has the faintest inkling that this may be due to the mental healing factors of faith and hope. Even if he succeeds in his treatment he has damaged both himself and his patient—himself because he has started on that downward path which leads to the belief that accuracy of diagnosis does not matter so long as the patient is told something definite: it is good if the diagnosis is correct, but not dreadfully bad if it is not. He has damaged the patient, who has been told that some organ of his perfectly healthy body is not quite healthy and who must now believe that he ought to take care of it; and whosoever starts taking care of a healthy body will soon have plenty of illness.

There is another unpleasant thought about all this. In all these ways doctors are regularly adding to the quantity of neurosis in the world instead of diminishing it. They do so if they succeed in the way just mentioned. They do so if they fail, because the patient soon loses faith in his doctor, gets bewildered, and is driven deeper into neurosis. I have said that neurosis is common, and I must add that it is lamentably common from this cause. A patient has symptoms caused by anxiety. The doctor says it is due to some physical lesion. The patient becomes anxious about this. The anxiety causes more symptoms, and this helps to fix the belief in physical disease, and so on *ad infinitum*.

So much for pure neurotics. But in addition to them many sick people will add mentally determined symptoms on top of a physically determined one. Anxiety from many sources is apt to complicate illness, especially chronic illness. And in many instances of organic disease the only treatment we shall be able to give will be psychological.

Teaching the Next Generation

I should like now to leave my young doctors and get back to the wards and try to plan how the next generation is to escape the mess that these poor young men are in. At once the questions arise: Where are these students to be taught, by whom, and what are they to be taught?

The answer to the first two will probably be that that is arranged for already—namely, in the psychiatric department by the psychiatrist. And my reply is that it is not good enough, for many reasons, some of which have been given. The question of neurosis must be raised often all over the hospital. The student must continually be made clinically aware of its possibilities as regards symptoms, and every teacher ought to be able to say something about the elements or principles of treatment. Now what is to be taught?

A physician of my acquaintance told me that it was high time we psychological people put our house in order, and I would respectfully ask those of our medical friends who acknowledge that we have a case to help us to present it properly, as they have done with other

technicians like surgeons and bacteriologists. They do not give these people a free hand with their patients, but call them in, consult with them, and then use them or not as seems fit.

There is an idea abroad that no psychological treatment except psycho-analysis is worth talking about. I have spent my life in trying to show that this is not true. I am saying nothing against psycho-analysis, which is probably the best treatment for certain cases, but there are a great number of patients who do not need it, for whom something quite simple is all that is required. I have no wish that medical students should learn analysis. It would be impossible for them to do so even if it were desirable. Time would make it so. For the same reason, even if psycho-analysis were the only psychotherapy, mental treatment would be impossible for the majority of patients. In my view there are, and have been for a long time, simpler and shorter methods of psychotherapy which are at least as old as Freud's system, and of which the greatest exponent was Dejerine of Paris. This depends on the fact that many symptoms are caused by conflicts and anxieties which are not necessarily unconscious in the Freudian sense, but which are not being faced properly. Taking a full history, in the course of which the patient may be induced to speak of these worries, be guided about them, have many of them explained so that they no longer cause anxiety, will in many instances bring about a great change for the better in the patient's mental outlook and in his health. Many of these anxieties will be on intimate personal matters, and talking about them will often give relief. Many will be about disease and health. It is incredible what extraordinary views people hold about health in general and their own in particular; and here it is that doctors should be more careful than some of them are in telling patients that they may have frail or impaired organs when the real truth is that these doctors themselves are unable to make a diagnosis. For the same reason students should be taught, when there is physical disease, not to put the gloomiest possible view before the patient, a thing done often with the best intentions so as to bring a patient to take some care of himself, but which may be followed by disaster.

There is one essential—namely, that the patient and the investigator must be alone together for their talks. People will not speak of intimate things before a crowd. Therefore it cannot be demonstrated to students how to do it; but students could be told the procedure and be supervised while they were learning to practise on patients. There will be cases which such a procedure will not cure; these are for the specialist. We expect a general practitioner to treat many dyspepsias, kidney diseases, headaches, and catarrhs by himself, and not to run to a specialist for every one. But there will be dyspepsias, headaches, and catarrhs for which he will need a specialist, and we expect him to learn which are those that he can treat himself and which are those where he should seek special skill. The same thing applies to the neuroses.

The Teachers

Who is going to teach the students? Time is needed. There should be someone who can teach them as clinical tutors teach them physical signs. These teachers may be under the psychiatrist; but whoever is at the head of this department should not be locked away in the department of psychiatry, but should be asked to come to the wards and consult with the physicians and surgeons as to whether there is a large emotional element in this case or not. The medical or surgical chief and the student will then not lose sight of the case as they will if the patient is dismissed to the psychiatric department because the general ward has got tired of him. If I am told this is impracticable I answer that nothing is impracticable which has been done and is done. Dejerine did it in his wards, and said that he got better results than in private practice. It is being done in America, and an extremely vivid description of the psychiatrist being welcomed in the general wards and consulted frequently has been given by J. Kasanin of Chicago (1937).

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THE VALUE OF RADIOLOGY IN THE ELUCIDATION OF HAEMOPTYSIS*

BY

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Haemoptysis is an important symptom in diseases of the chest, and was formerly considered to be a certain indication of pulmonary tuberculosis unless the contrary could be proved. We know now that it may be a symptom of any chronic or acute disease from simple bronchitis to lobar pneumonia.

Haemoptysis in Pulmonary Tuberculosis

If pulmonary tuberculosis has been responsible for a haemorrhage from the lungs, a chest skiagram will nearly always supply evidence of this disease. But it sometimes happens that although the history and symptoms are suggestive of pulmonary tuberculosis, a skiagram fails to show any abnormality. It appears probable that this may be explained by the presence of a small focus of disease which either proves abortive or goes on subsequently to the development of a more obvious lesion. It is desirable, however, that a very careful radiological examination should be carried out, since a tuberculous focus, or even a small cavity posterior to the lung root or heart or behind the domes of the diaphragm, may be easily missed. The investigation should include a screen examination and radiographs taken in the oblique and lateral positions. The semi-oblique position, with the patient rotated so that the clavicle on the side to be examined is parallel with the cassette, is of special importance in demonstrating lesions in the vicinity of the lung root. Radiographs taken with the Potter-Bucky diaphragm or a fixed grid of the Siemens or Lysholm type are also of value, especially in stout patients.

The invention of tomography has considerably enlarged the scope of the radiological examination of the chest, and I think that in the future it will prove a method of considerable interest in the examination of cases of haemoptysis with no obvious lesion in the lungs. As some of these patients subsequently develop a lesion which can be demonstrated radiologically, it is important to carry out serial radiographs at intervals to exclude the presence of disease.

There are many other conditions besides pulmonary tuberculosis which may cause haemoptysis, the most

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important being bronchiectasis, heart disease, new growth, aneurysm, and trauma. A frank haemoptysis may also occur in early pneumonia. An interesting paper was published in 1928 by Vinson describing work carried out at the Mayo Clinic on the relative frequency of haemoptysis in pulmonary tuberculosis, bronchiectasis, and mitral stenosis. The history of 100 patients suffering from each of these diseases was contrasted, and it was found that forty-nine of the 100 with bronchiectasis had haemoptysis, as compared with twenty-nine in the pulmonary tuberculosis group and only eighteen among those suffering from mitral stenosis. This suggests that while it is true that pulmonary tuberculosis usually is the cause of a pulmonary haemorrhage because of the greater frequency of the disease, the relative incidence is much higher in bronchiectasis.

Dry Haemorrhagic Bronchiectasis

The occurrence of haemoptysis in bronchiectasis has been known for a long time, but it is only since the introduction of lipiodol as a method of outlining the bronchi that the presence of what is termed "dry haemorrhagic bronchiectasis" has been successfully demonstrated. In this condition there are no obvious physical signs such as clubbing of the fingers or purulent sputum, which may reveal the presence of the disease on clinical examination. The radiological investigation is therefore of considerable importance. The preliminary radiographs may show evidence of fibrosis, or the dilated bronchi may actually be visible as a series of spherical or cylindrical clear spaces, but in any case lipiodol will be required in order to show the extent of the disease. The lesion may be found either in the upper part of the lung, where it closely simulates pulmonary tuberculosis in appearance, or, more commonly, in the lower zone, where it is less likely to be confused with other lesions. When the condition is developmental in origin and probably due to failure in budding, the dilatations are spherical in appearance, while in the acquired disease the dilatations are usually cylindrical.

There are many methods of introducing the oil in common use, the simplest of which is to drop it on the back of the tongue after abolishing the swallowing and cough reflexes by means of a 5 per cent. cocaine spray and 10 per cent. brush, in each case a little adrenaline being added. This gives good pictures when successful, and causes the patient a minimum of discomfort. The use of a nasal catheter is a surer way which enables the oil to be injected into any part of the lung under screen control. The lipiodol can also be introduced through the crico-thyroid membrane.

If the opaque medium is introduced through a bronchoscope the resulting films are never so good as those obtained by other methods. The lipiodol tends to be concentrated in one part of the lung, and the appearances are often deceptive owing to localized areas of alveolar filling, which may closely resemble cavitation in the lung. It is, however, often impossible to outline properly the cavity of an abscess of the lung by any other method.

The radiographic technique will naturally vary with the apparatus at the disposal of the operator. It is essential to take radiographs in the shortest possible time and to overexpose the films. It follows from this that a set of high output and the use of a rotating anode tube will give the best results. The exposure time should, if possible, be one-twentieth of a second or less.

Haemoptysis in Heart Disease

The radiological examination of the heart is an important branch of chest radiology that has made very much progress in recent years. The appearances of the heart and great vessels on screen examination and in the teleradiograph have been exhaustively studied, and more recently kymography has been introduced as a method of examination which is already proving of considerable use. The apparatus consists of a moving grid with a series of horizontal slits at intervals of twelve millimetres which record the movements of the beating heart as a wavy line. Respiratory movements of the ribs and diaphragm can also be registered. In the examination of the heart the exposure is made with the breath held so as to avoid respiratory disturbance of the heart movements. Each region of the heart has a characteristic curve. The aortic arch also gives a wave form which distinguishes it from opacities due to neighbouring structures.

It is necessary to exclude any lesion of the heart when examining a patient with haemoptysis, since many of these patients are in reality suffering from heart disease. Haemoptysis is less common in heart lesions than in pulmonary tuberculosis or bronchiectasis, but it is an important symptom in mitral stenosis. Paroxysmal attacks of haemorrhage may occur in this disease, due to congestion in the lungs or to infarction. In an early case of mitral stenosis the first radiological sign in an anterior radiograph is a prominence of the pulmonary artery and pulmonary conus. Some enlargement of the left auricle may probably be detected at this stage in an oblique film. As the degree of stenosis increases there is a progressive enlargement of the left auricle, which can be seen bulging into the retrocardiac space both on screen examination and in radiographs taken in the first oblique and lateral positions with or without a barium swallow. The accompanying congestion in the lung fields is a characteristic feature.

Pulmonary Infarction

Pulmonary infarction is a possible cause of haemorrhage wherever there is vascular engorgement in the lungs. Such engorgement may occur in mitral stenosis and also where there is left ventricular failure. It also occurs as a post-operative phenomenon. The radiological changes seen in pulmonary infarction were not well known before the advent of the portable radiograph. As the patients are usually very ill the condition is rarely seen in the routine radiographs taken in the *x*-ray department. Shirley Smith (1938) in a recent paper has described thirteen cases with radiographic control. The changes are usually seen at the base of the right lung. The appearances are variable, and may consist of an area of clouding rather like the appearances seen in pneumonitis, or an irregular shadow may be present resembling that seen in lung abscess. An accompanying pleural effusion may mask the area of consolidation in the lung. It is worthy of note that in the absence of pleural effusion the heart is usually drawn slightly towards the side of the lesion.

Bronchial Carcinoma

A frank haemoptysis is uncommon in bronchial carcinoma, although it may be a leading symptom, for instance, in a malignant papilloma spreading from the bronchial wall. The lumen of the bronchus at the site of growth may be filled with necrotic material, and blood is not present in sufficient quantities to be obvious in the sputum. In the relatively rare benign bronchial growths, such as papilloma and endothelioma, haemorrhage is, on the other

hand, common and may be profuse. A bronchial carcinoma usually produces changes in the lungs that are easily seen in a film, but the small benign growth will not be detected unless it is large enough to block the lumen and cause atelectasis. It follows, therefore, that the radiological examination may be entirely negative. Examples of such cases were described by Morlock and Scott Pinchin (1935), McGibbon and Baker-Bates (1937), and others. The latter authors describe tracheal varix and non-specific granuloma as causes of pulmonary haemorrhage. The rare tracheal carcinoma may be the cause of haemoptysis, and is sometimes visible in the skiagram after lipiodol. If the radiological examination is negative and the attacks of haemoptysis continue, a bronchoscopic examination must be considered.

Aneurysm of the Aorta

In aneurysm of the aorta haemoptysis is only seen as a terminal event, staining of the sputum being a warning sign of the imminence of a rupture. The diagnosis of aneurysm is not always easy to the clinician, especially if the posterior part of the arch or the descending thoracic aorta is involved. Unfortunately it is not always simple for the radiologist, for any growth or tumour in the neighbourhood of the aorta will simulate an aneurysm, especially if the growth is one in close contact with the aortic arch and involving the pericardium. Mistakes often occur, and the Wassermann reaction is not an infallible test. Aneurysm may simulate a dermoid cyst if it is directed forwards and laterally in the superior mediastinum. Kymography is of great assistance in such cases, and I think that in the future it should lead to a correct diagnosis in most cases, since it enables us to separate the outline of the aorta from the growth and usually gives a characteristic picture.

Haemoptysis following Injury to Chest

Haemoptysis may follow injuries to the chest with or without rib fracture. Where the injury is severe the presence of a fracture is very easily shown, but there are many cases where radiological demonstration of a fractured rib is difficult. A general radiograph of the chest sometimes fails to reveal the injury. A localized view may be of assistance. This can be done by two methods. The cassette is placed in contact with the site of greatest pain and compression applied so as to prevent movement of this part of the chest wall. If the patient is then instructed to breathe lightly the part of the ribs in contact with the cassette will remain stationary and the outline of the remainder of the ribs will be blurred owing to the movement. The second method is to diminish the focal skin distance so as to blur the overlying ribs and bring the part of the chest nearest the cassette into focus.

Conclusion

This summary of the main conditions which may be the cause of a haemoptysis cannot be considered to be complete, but I hope it will have served to show that a radiological examination is an essential part of the investigation of these cases, and that it may be a deciding factor in the diagnosis. It is well known that no examination of the chest is complete to-day without a complementary radiological investigation.

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PLAY-THERAPY FOR "PROBLEM" CHILDREN

BY

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The object of this paper is to show the immediate results of treatment and the present condition of 154 of the children who attended the Institute of Child Psychology for varying periods between the years 1930 and 1935. With the exception of four cases all the children included in the follow-up were treated by the psychological method known as "play-therapy," according to the technique devised by Dr. Margaret Lowenfeld, who started the institute as a small clinic for problem children in 1928.

During the period under survey 247 children were accepted as patients. Of these thirty-two were consultation cases in which the children attended not more than three times and in which periodical advice as to management was all the treatment indicated and given. Although we know that some of these cases are doing well, they have not been included in the chart, as they were not treated by play-therapy. Fourteen patients were discovered to be mentally defective and were rejected; twenty-three cases were immediately transferred to other institutions for various reasons; and in twenty-four cases the parents proved uncooperative soon after acceptance and the patients ceased to attend. The remaining cases, 154 in number, received full treatment and are analysed in the chart below. The eldest child was 17 and the youngest 2½. They are divided into four categories—namely, neurosis, anti-social and behaviour problems, physical complaints, and educational difficulties.

The majority of the children were recommended by school authorities, social agencies, police-court officials, hospital doctors, and private practitioners. The remainder were brought by patients or friends.

Neurosis (76 Cases)

Under this heading are included cases in which the chief causes for reference were the following: anxiety, night terrors, sleep-walking, excessive or unwarranted fears and inhibitions, nervousness and hypersensitiveness, hysteria, tics and habit spasms, lack of concentration or self-confidence, inability to play, screaming fits, anorexia nervosa, insomnia, and obsessions. In addition to one or more of these symptoms seven suffered from enuresis, nine from speech defect, and fourteen were backward at school.

TREATMENT

Twenty-seven were treated by play-therapy alone. In addition to play-therapy forty-two had some kind of medical, surgical, or dental treatment for physical disorders discovered on examination, ranging from dental caries to undescended testicles; nine had speech-therapy; and fourteen educational coaching in one or more subjects. Some children needed two or three of these types of treatment.

Anti-social and Behaviour Problems (38 Cases)

These children were referred to the institute on account of difficulties such as excessive disobedience, temper tantrums, unmanageableness, truancy, vagrancy, lying, pilfering, stealing, excessive bullying, sexual offences, destructiveness, gangsterism, etc. In addition, seven of

Table showing Analysis of Cases

Homes	No. of Cases	Condition on Discharge					Present Condition Follow-up										
		Well	Much Improved	Improved	Unadjusted	Uncooperative after some Treatment	Well	Much Improved	Improved	Unadjusted	Dead	Untraced	Transferred after Treatment to other Institutions	Average Age	Average No. of Attendances.	Average Months of Treatment	Average Intelligent Quotient
Neurosis:																	
Good	24	12	8	3		1	15	6		1	1	1		7.2	30.5	9	116.0
Unsatisfactory	36	12	15	6	2	1	22	3	3	3	1	2	2	8.1	33.7	9.6	104.0
Bad	16	3	7	3	3		6	4	1	1		2	2	9.5	23.0	8.5	95.6
Total	76	27	30	12	5	2	43	13	4	5	2	5	4				
Anti-social behaviour:																	
Good	5		1	2	2				1			3	1	9.5	26.4	7.0	99.5
Unsatisfactory	13	4	5	2	1	1	6	3	1			2	1	11.0	21.3	6.8	97.0
Bad	20	4	6	2	1	7	7	2	1	5		3	2	9.0	22.0	6.1	95.5
Total	38	8	12	6	4	8	13	5	3	5		8	4				
Medical cases:																	
Good	10	4	3	1	1	1	6	1		1		1	1	8.3	25.4	7.1	109.8
Unsatisfactory	15	5	8		2		8	4	1	1			1	7.0	43.0	12.1	94.0
Bad	9	1	3	5			4	3	1			1		8.0	40.2	14.0	84.0
Total	34	10	14	6	3	1	18	8	2	2		2	2				
Educational cases:																	
Good	1	1					1							10	21	7	98
Unsatisfactory	2	1	1				2							11	12	4	105.5
Bad	3		3				1	1				1		9.7	50.0	13.0	91.5
Total	6	2	4				4	1				1					

the above suffered from enuresis and five were backward at school.

TREATMENT

Eighteen were treated by play-therapy alone. In addition to play-therapy eighteen had treatment for physical disorders and five had educational coaching.

Physical Complaints (34 Cases)

These children were referred to the institute on account of some chronic medical disorder, for which, in many cases, previous treatment had been of no avail. The complaints included asthma, eczema, urticaria, fits, functional eye complaints, functional paralysis, muscular incoordination, general debility, pyknolepsy, colitis, vomiting, etc. In some cases there was an underlying neurosis which manifested itself only in this manner, or there was an accompanying neurosis which helped to form a "vicious circle." Eighteen had enuresis, either as the only complaint or in addition to another.

TREATMENT

Sixteen were treated by play-therapy alone. In addition to play-therapy seventeen had some kind of dental, medical, or surgical treatment and three had educational coaching.

Home Circumstances

Comprehensive accounts of the home conditions of these children have been obtained, and are graded according to three evaluations: good, unsatisfactory, and bad.

Good.—In these homes the material conditions were good, varying only according to the social position of the family. So far as could be ascertained the emotional relations between the parents were normal. Any psychological mistakes in the nurture of the children were such as spring from a too strong insistence on the ordinary taboos and inhibitions prescribed by convention and a sense of respectability and a too early or rigid training in cleanliness and social behaviour. Symptoms of anxiety neurosis were noticeable in some of the mothers.

Unsatisfactory.—In these homes, though the income was usually sufficient for the needs of the family unless there was temporary unemployment, the psychological conditions were not good. Parental psychoneurosis, bad relations between the parents, broken homes, bad management of the home, adoption and illegitimacy, and gross mismanagement of the children were among the difficult factors in the family situation. A few of these children were now living in homes and hostels, having had bad earlier experiences.

Bad.—Here the conditions were bad in every sense. Poverty, overcrowding, slum conditions, drunkenness, sexual offences, illegitimacy, feeblemindedness, wife-beating, and desertion were prevalent.

The figures show that in the neurosis, the anti-social, and the medical groups (the educational group is too small for comparison) there is a correlation between the type of home, the complaint, and the average intelligence quotient. The average intelligence quotient was lowest in the "bad" type of home in all three groups.

In the anti-social group the numbers admitted for anti-social behaviour vary directly with the type of home, being smallest in the "good" type. From the "bad" type of home came 52.6 per cent. of the anti-social cases: from the "unsatisfactory" type 34.2 per cent.; from the "good" type only 13.2 per cent.

In the neurosis group the figures were 21 per cent. from the "bad" type of home; 47.3 per cent. from the "unsatisfactory" type; and 31.5 per cent. from the "good" type. Neustatter (1938) showed that poor social conditions did not necessarily produce neurosis in children unless there were symptoms of it in the parents. The above figures seem to confirm his findings and to suggest that delinquency and crime are more likely to be the end-results in the "bad" type of home. It is interesting to note that the highest percentage of neurosis cases came from the more comfortable homes where psychological conditions were bad.

The results of treatment, the length of time taken, and the number of attendances necessary do not seem to bear any relation to the type of home. Just as good and enduring results seem to have come about in cases from "bad" homes as in those from the other two types. This suggests that the direct method of play-therapy can be successful in helping the child to overcome his difficulties without the necessary aid of environmental change.

Immediate Results of Treatment

Many of those placed under "much improved" on discharge might have been labelled "well"—that is, free from the symptoms for which they were referred, with no development of other symptoms indicating that adjustment had not been reached. But, as we felt that consolidation was still necessary after they left, they were designated in the case sheets "much improved."

Present Condition of Patients

It is satisfactory to report that many of the "much improved" cases can now be labelled "well," and as far as can be judged are completely normal. Under the heading "unadjusted" are four anti-social cases, one of whom is in Borstal and two are in Home Office schools. These cases were prematurely removed from the clinic by their parents, who became uncooperative after the children had had a certain amount of treatment. They all came from "bad" homes. One case of neurosis from a "bad" home is now in Borstal. The present condition of the 154 patients is as follows:

Well	78
Improved and much improved	36
Unadjusted	12
Dead or not traced	18
Transferred to other institutions	10
	154

This is not a large number, but the method of treatment was then new and experimental, and fewer cases were taken than now. At the Institute of Child Psychology attention is more intensively concentrated on the treatment of the patient and less on the alteration of environmental conditions, and consequently the period of treatment is longer and the attendances more frequent than in other clinics treating similar cases by different methods. The social worker does not visit the home more than once, and the aim of the treatment is to help the child to overcome his own problems rather than to remove difficulties from his path. On the other hand, the constant attendance of the mothers at the centre and the influences exerted upon them both in the social workers' department and in the parents' department doubtless have an effect through the mother upon the home environment.

The clinic is open twice weekly for sessions of two hours each, and the majority of the children attend twice a week until improvement is well established, when the intervals are extended until attendance ceases altogether, except for reporting purposes. Every child receives a medical examination on entrance and at periodic intervals. Where necessary medical or surgical treatment is arranged for, in consultation with the family physician if there is one, in order to help the child to become as physically fit as possible. Simple medical treatment is given at the institute itself if the parents are too poor to pay for private medical attendance. In some cases convalescent holidays are arranged for varying periods. In certain medical disorders, however, where a psychological origin is suspected, no medical treatment at all is advised or given. As an adjunct to play-therapy and also in the interests of physical fitness, the physical re-education and rhythm department is of great help in treatment. The formation of a parents' department, in charge of a medical psychotherapist, though primarily for the purpose of helping the parents with their own difficulties, is doubtless responsible for the fact that once the child's treatment is established a large percentage of the mothers remain co-operative throughout, however long it takes.

Acknowledgments are due to Dr. Elspeth Macleod, tutor, Institute of Child Psychology, for the help she has given with some of the cases.

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TREATMENT OF GONORRHOEA WITH ULERON

BY

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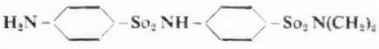
Surgeon Lieutenant Commander, R.N.

The following is a record, with observations, of forty-three cases of gonorrhoea, of which twenty-one had received routine treatment for at least six weeks prior to having uleron.

Uleron is one of the newer compounds evolved in the endeavour to obtain a drug, possessing the lowest possible toxicity, which would influence the largest number of bacterial diseases apart from streptococcal infections. It has the formula:



It is one of three closely allied compounds, which only differ by substitutions in the final sulphonamide group, and which have been found to exert a more favourable influence in gonococcal infections than any of the other thousand compounds investigated.

Uleron is manufactured by Messrs. Bayer, who kindly put a supply at my disposal. I was told quite frankly that they could make no definite claims for uleron, which was still under trial; that I might find it a complete failure; and that neither its dosage nor its non-toxicity was established. It had been tried out in some clinics in Germany, and a translation of the report by Grütz, "New Foundations for the Treatment of Gonorrhoea," an advance proof of Fischer's "New Methods of Treatment of Gonorrhoea," and Felke's "On the Chemotherapy of Gonorrhoea" constituted the available literature at that time. These three workers were most enthusiastic about the therapeutic value of the new compounds. They claimed their advent as the greatest advance ever made

in the treatment of gonorrhoea, and were confident that the long-awaited solution to the problem of a speedy cure for that disease had at length been found.

Earlier Experiences with Uleron

Grütz had worked mostly with one of the other compounds of the uleron group, which he found superior to uleron, though in his tables only two cases seem to have been treated by uleron alone. In his series of thirty-six cases he obtained twenty-four cures. The total dosage varied between 6 grammes and 82 grammes. Toxic effects were noted in eleven cases.

Fischer treated forty cases, one half with uleron, the other half with the allied compound used by Grütz. He observed no distinction between their relative efficacy. It was his impression that with the allied compound it was the clinical symptoms, not the microscopical findings, that were more quickly affected. He made careful observations of the blood pictures of his cases and noted an almost constant diminution of the polymorphs, with a relative increase of the lymphocytes towards the end of a course. Apart from this neither preparation gave rise to any evidence of toxicity. He further stated that the urinary findings were in no way abnormal, and that estimations of bilirubin, xanthoprotein, blood sugar, and blood calcium invariably showed figures within physiological limits. He gave 3 grammes daily for three days, and repeated the course in eight to ten days if necessary. Later he obtained equally good results with 2 grammes daily for five days. Toxic effects were completely absent. He found that non-recent cases reacted better than acute ones, and for the latter advocated either waiting ten to fourteen days before starting the treatment or stimulating the body defences by vaccines, injections of blood, olobinthin, or colloidal sulphur, irradiations, etc. In his finally published paper he had obtained cures in fifty-five cases out of fifty-eight with only one relapse and one case of toxic rash and pyrexia.

Felke reported on fifty cases. He too stressed what he terms "the preparedness of the body for cure," and recommended that acute cases should have a short course of uleron to clear up the gross symptoms: then an interval for Janet irrigations twice daily, during which time the body defences were mobilized; and only then a second course of uleron, 2 to 2.5 grammes daily for five or six days. To one case he had given 61 grammes in three weeks without causing side-effects, but considered such dosage excessive and to be avoided. He hoped for still newer compounds requiring a smaller degree of co-operation on the part of the body. Commenting on the mode of action of uleron, he noted that even while taking large doses the blood of the patient had no inhibitory action on the growth of gonococcal cultures.

Treatment of the Present Series

It was suggested to me that the results of treatment by smaller doses would be of interest. A dosage of three tablets a day—1.5 grammes—was adopted and adhered to in all my cases. In spite of the results already obtained elsewhere I began treatment cautiously, my earlier patients receiving a three-day course, which was only repeated after an indefinite interval of observation for relapse, delayed cure, or toxic manifestations. As it became evident that such treatment was insufficient the interval between the courses was shortened. Next the courses were lengthened, and also the intervals, the latter being again shortened as the almost complete absence of toxic symptoms became evident. In addition to receiving uleron for the periods shown in the case records, all patients were irrigated twice daily with potassium permanganate 1 in 10,000, and had prostatic massage once a week if the prostatic smears were pathological.

The standard of cure was not exacting. All treatment was stopped. Daily examination was made for urethral discharge immediately on rising, as well as of the first morning urine by the two-glass test. Other criteria were: the anterior urethra normal on urethroscopy; the passage of a large sound; a prostatic smear showing absence of organisms and less than four pus cells per field. The minimum observation period was eight days: this was extended up to twenty-one days in many cases.

Complications.—None occurred in any patient after commencement of treatment with uleron.

Toxic Effects.—One possible case, No. 37: gastro-enteritis, pyrexia, and giant urticarial rash on the eleventh day of treatment. The temperature (101.4°) became normal in forty-eight hours, and the rash had gone within seventy-two. The patient blamed some tinned salmon for this upset, volunteering the information that on the previous evening he had eaten some for the first time for nine years. Nine years ago its ingestion had been followed by severe gastro-enteritis but no rash.

Results of Treatment

21 cases had a	three-day course	..	5 were cured
11 „ „	second course	..	2 „ „ (6 were cured after 7 to 13 days' uleron)
12 „ „	four-day course	..	1 was cured
8 „ „	second course	..	4 were cured
3 „ „	13 to 17 days' treatment		No cures
4 „ „	five-day course	..	1 was cured
2 „ „	second course	..	No cures (1 was cured after 11 days' uleron)
2 „ „	six-day course	..	No cures
4 „ „	seven-day course	..	2 were cured

Cured: 22 cases (2 acute: 20 non-acute)
Failures: 21 cases of which 15 were inadequately treated, 6 were adequately (?) treated

My results seem to compare unfavourably with those of the German clinics to which I referred earlier. The obvious cause for this is under-treatment due to three things: the number of cases (seven) transferred from my charge before treatment was completed (Nos. 4, 6, 19, 21, 22, 35, 36); overcaution in abandoning treatment (five cases, Nos. 5, 9, 12, 16, 26); and lack of uleron to complete treatment in three cases (Nos. 38, 39, 40). These fifteen cases are not true failures. They are short-treatment failures, and should only be assessed as such. They are included lest the false impression might be given that a high percentage of cures can be obtained after a few days' treatment with uleron. I am recording several such cures, but I regard them rather as the exception than as the rule—agreeable surprises when they occur, but not to be expected in any individual case. It is rather unfortunate that nine out of these fifteen cases were in the acute stage—that is, in the first three weeks of the infection. Of the six true failures it is significant that five were acute cases and that only two of the successes were acute.

Clinical Observations

The immediate effects of uleron are remarkable. In nearly every case the discharge dwindles rapidly and the urine clarifies within a couple of days. The discharge becomes a morning dampness, and gonococci disappear almost abruptly from the urethral smears. The usual transitional stage seems to be entirely absent, for no Gram-negative extracellular diplococci were reported in any of the slides. In only three adequately treated cases did gonococci persist in the urethral discharge. Subjective symptoms such as dysuria and painful erections

ceased. I had not the opportunity of noting the effect of uleron on acute complications as most of my complicated cases had got over their acute symptoms when they reached me. The extraordinarily rapid clinical improvement and deceptively clear morning urines give rise to an expectation of speedy cure which is not always fulfilled. The morning dampness invariably consists of pus cells and coccal organisms, Gram-negative cocci being the most common finding. To cause complete cessation of this pathological dampness was the difficulty, for it sometimes proved resistant to second and third courses of uleron, to periods of irrigations alone, and to complete rest from treatment. From the patient's point of view the gonorrhoea was cured, and it would be easy to overlook this slight persistent urethritis if the patient was not under strict observation. Cessation of local treatment at this stage invariably led to a gradual increase in the amount of the discharge, though gonococci were seldom demonstrated after they had been absent for about ten days.

It was tantalizing to arrive almost at a cure so speedily, only to be checked by the morning dampness. It was felt that some small alteration in the dosage or prolongation of the courses would overcome this final obstacle to cure in many cases, and it was this incentive which led me to pass on too quickly to seven-day courses when my supply of uleron was running low. In spite of some wonderful cures with three-day and four-day courses I felt that even two four-day courses of 1.5 grammes per day would not give the best results of which I believe this drug to be capable. Thirteen of my patients had more than eight (nine to seventeen) days' treatment, seven of them being cured, four within the ten-day limit. Nineteen out of my twenty-two cures were obtained with a maximum of ten days' treatment, which I would certainly use as a standard basis for further clinical trials with uleron. It is fully realized that one is not entitled to draw conclusions from experiences with a couple of dozen cases, and that the adoption of a ten-day standard is arbitrary and unproven. The method of action of uleron is not fully understood. Fischer says, "We cannot speak of its disinfectant action, but rather of one affecting the reticulo-endothelial system." It is suggested that intermittent is preferable to continuous treatment, in which case the dosage of 1.5 grammes per day might be increased with advantage in the absence of toxic symptoms. With the smaller dose which I employed I feel that at least two-day, five-day, or even seven-day courses would give excellent results, and this matter deserves full clinical investigation.

Impressions from the Treatment

The number of cases I have treated is too small to permit me to draw conclusions. I can only record my impressions. They are:

That uleron is definitely a most valuable adjuvant in the treatment of gonorrhoea.

That in the dosage I employed uleron appears to be non-toxic.

That with moderate doses, used in conjunction with local treatment, a cure can be obtained in a large number of cases more quickly than hitherto possible.

That the non-acute cases seem to respond more readily than the acute cases.

That when the optimum dosage is established a high percentage of cures should be possible within three weeks.

That a small percentage of patients may prove completely resistant to uleron treatment.

1 Case No.	2 Age	3 Past Infections of Gonorrhoea	4 Gc. Present in Urethral Smear	5 Complications	6 Uleron 1 tab. t.i.d.	7 Urethral Smears	8 Prostatic Smears, Leucocyte Counts, etc.	9 Result	10 Total Days on Uleron
1	30	1931	147	Nil	155-157	158 pec 163 nil		Cured	3
2	37	1935	54	Ep. L. 20	75-77	76 nil		,,	3
3	32	1924 1931 1935	1	Nil	2-4	5 nil 20 nil	16 fps	,,	3
4	33	1934 1935 1937	121	—	131-133	134 ec 138 pec		Failure P.T.	3
5	33	Nil	5	—	5-7	10 nil 21 pec		Failure T.A.	3
6	21	—	2	—	2-4	5 pec 11 Gc		Failure P.T.	3
7	24	—	23	—	28-30	30 fpe 32 nil	25 6,000	Cured	3
8	28	—	36	Ac. P. 20	46-48	49 fpe 51 nil	44 8,600	,,	3
9	22	—	74	Nil	75-77 83-85	81 Gc 88 Gc	82 8,400	Failure T.A.	6
10	32	—	51	Ep. R. 27	52-54 62-64	53 nil		Cured	6
11	22	—	14	Ep. L. 14	22-24 30-32	25 nil 29 Gc 33 nil	22 6,000 29 GFT + 43 GFT −	,,	6
12	21	—	—	Nil	44-46 50-52	47 pec 52 nil 59 pec		Failure T.A.	6
13	24	—	54	—	55-57 73-75 82-84	58 nil 71 pec 77 pe 85 e 88 nil	65 fp	Cured	9
14	26	—	83	Ac. P. 24	83-85 93-95 98-101	86 nil 93 pec 97 pc 102 nil	99 ed 107 d	,,	10
15	31	—	70	Ac. P. 31	79-81 88-91 94-97	87 Gc 91 Gc 98 fpe 101 nil	98 e	,,	10
16	28	1935	20	Nil	21-23 28-30 37-39	24 pc 28-36 nil 36 pc 40 pec		Failure T.A.	9
17	25	1934 1937	115	—	115-117 125-127 132-136	118 pec 129 pec 137 nil	124 11,400	Cured	11
18	19	Nil	1	—	2-4 9-12 18-20	9 Gc 13 pec 22 Gc	26 Gc 30 10,200	Failure T.A.	10
19	26	1931	1	Nil	2-4 9-11	5 fp 6-7 nil 12 pec 19 Gc		Failure P.T.	6
20	28	1934 1935 1936	36	39-41	39-41 61-64	43 pe 50 Gc 64 nil	43 fp	Cured	7
21	18	Nil	6	—	9-12	12 pe 18 Gc		Failure P.T.	4
22	23	—	1	—	1-4	5 pec 9 pec		,,	4
23	20	1937	11	—	60-62 68-71 85-90	62 pec 73 nil 82 pec 91 fp 93 nil	79 sd	Cured	13
24	39	—	47	Ep. L. 28	52-55	54 nil		,,	4
25	22	1936	6	Nil	122-125 133-135 142-144	126 pec 141 pec 143 nil 149 fpe 151 nil	135 ed	,,	10
26	29	—	7	—	12-15 20-23	19 pe 26 pe		Failure T.A.	8

1 Case No.	2 Age	3 Previous Infections of Gonorrhoea	4 Gc. Present in Urethral Smear	5 Complications	6 Uleron 1 tab. t.i.d.	7 Urethral Smears	8 Prostatic Smears, Leucocyte Counts, etc.	9 Result	10 Total Days on Uleron
27	17	—	101	—	102-105 113-115	105-107 nil 108 pec 118 nil		Cured	7
28	19	—	37	—	41-44 48-51	45 pc 50 nil		„	8
29	43	1922 1927 1935	56	Ac. P. 16	73-76 80-83	77 fpe 86 nil		„	8
30	24	Nil	3	Nil	19-22 26-29 33-37 41-44	21-6 nil 31 pec 38 pec 50 ec	25 pec 37 GFT+ 44 GFT−	Failure T.A.	17
31	28	—	8	—	15-18 21-24 33-37	20 pc 30 pec 37 pe 47 pe	26 pe 36 ed	„ „	13
32	25	—	26	Ep. R. 27	44-47 50-54 61-65	48 pec 55 pe 68 pec 75 pec	45 pec 55 pec 72GFT+ 79 GFT−	„ „	14
33	21	—	49	Ep. R. 30	53-56 58-61	57 e 59 nil	57 fpe	Cured	8
4	31	1928	7	Nil	13-17 27-31 35-38	19 pe 23 Ge 35 Ge 43 Ge 50 Ge		Failure	14
35	30	Nil	97	Nil	97-101	103 pec	104 pec	Failure P.T.	5
36	34	—	5	—	11-15	18 pec	15 GFT−	„ „	5
37	32	1926	1	—	3-7 10-14 17	9 pec 15 pe 17 U 17-35 nil	16GFT+− 23 GFT− 40 fpe	Cured	11
38	35	—	2	—	16-21	22 pe 28 pec		Failure T.A.	6
39	33	1928 1931	34	Arth. 32	37-42	45 pec 56 Ge	35 7,000	„ „	6
40	29	Nil	109	Ep. L. 44	109-115	116 pec	116 Ge	„ „	7
41	37	1925 1926 1929 1931 1933	18	Ep. L. 4	21-27	23 nil	29GFT+− 36 GFT− 43 ed	Cured	7
42	28	Nil	1	Nil	3-9 14-17 25-28	10 Ge 20 Ge 29 pe 30-36 nil 7 Ge	10 5,800	Failure T.A.	15
43	37	—	97	Ac. P. 28	100-106	106 nil		Cured	7

Columns 4, 5, 6, 7, and 8.—The numerals represent the number of days that the infection has been present.

Column 4.—The last occasion on which gonococci were demonstrated in a urethral smear prior to commencing uleron treatment.

c = Gram-positive cocci. d = debris. e = epithelial cells. f = few—less than four per field. Gc = gonococci. GFT = gonococcal fixation test. p = pus cells. s = spermatozoa. u = urticaria. P.T. = patient transferred. T.A. = treatment abandoned.

The cases are not in strict chronological order. Only the more relevant smears have been included. In all "Failure T.A." cases the discharge was present fourteen days after uleron had been stopped.

I wish to express my thanks to Surgeon Rear-Admiral L. Warren, O.B.E., for permission to publish these cases; and my indebtedness to Surgeon Lieutenant Commander A. R. Froggatt for the laboratory reports.

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A POST-MORTEM RECORD OF PULMONARY TUBERCULOSIS IN DIABETICS

BY

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The belief, based upon clinical observation, that diabetics are especially prone to tuberculosis is of long standing. Fishberg (1932), however, was not convinced, and regarded the percentage of diabetics presenting tuberculous lesions at necropsy as not at all formidable. Root (1934, 1937) has investigated the point statistically by means of post-mortem records from various published papers in different countries from the years 1888 to 1932. In 1,121 necropsies on diabetics the incidence of active pulmonary tuberculosis was 28.4 per cent., and in 51,705 necropsies on non-diabetics 22.9 per cent. He interprets these statistics to signify that since "two diseases occur in association with less frequency than either one alone is found in a series of necropsies, it would appear that tuberculosis is about two or three times as frequent at necropsy as would be expected in diabetes." Analysing both the morbidity and mortality figures which deal with American hospitals, Root points out that the incidence of pulmonary tuberculosis in adult diabetics is not diminishing, despite the general decrease of tuberculosis mortality, and that this sequel occurs in juvenile diabetics more than ten times as often as among non-diabetic grade and high-school children in Massachusetts.

I am not aware of any recent mortality statistics bearing upon this subject in England and Wales, though Dunlop (1937) has published a clinical record of twenty-eight cases in Edinburgh. The Registrar-General's report (1937) shows that the mortality from tuberculosis is declining and that from diabetes is rising, the total number of deaths in 1936 from tuberculosis being 28,268 and from diabetes 7,119.

The Material Investigated

The post-mortem records of the London Chest Hospital, which is primarily concerned with the treatment of intrathoracic disease, show twenty-one deaths (0.75 per cent.) from diabetes in 2,826 necropsies (1,138 with active tuberculosis and 1,688 with non-tuberculous diseases) between 1888 and 1937. Of the twenty-one diabetics four were not associated with tuberculosis and a fifth had only calcareous tubercles with puckering of the lung apices. The remaining sixteen had active pulmonary tuberculosis, and comprised 1.4 per cent. of the 1,138 necropsies with active tuberculosis.

Root's collected records of 3,575 fatal cases of diabetes show 5.11 per cent. with tuberculosis. The twenty-one cases of diabetes with a mortality from active pulmonary tuberculosis of 76.19 per cent. are too few to be comparable with Root's figures. Moreover, a selective influence has obviously been at work in admitting to a chest hospital diabetics with tuberculosis. Some information, however, may be derived from the details of the necropsies. Eleven of them occurred before the introduction of insulin and five after. Four of the sixteen cases were of the young adult type—a male aged 27 and a female aged 20 in the pre-insulin period and two males aged 28 and 23 in the insulin period. The ages of the other twelve ranged from 40 to 65, and were therefore of the middle-age group. Eleven of the patients were

males and five females. The type of lesion noted was predominantly caseous, frequently with tuberculous pneumonia, and all but one had cavities, the cavities being multiple in 60 per cent. of cases. This exception, a male aged 20, was the only case showing signs of quiescence. He had only a few widely scattered tubercles, the size of a large pin-head, in all lobes, which were almost calcareous. There were three instances of acute miliary spread, two of fatal haemoptysis, two of empyema, and one of pyopneumothorax. Pleural adhesions were noted in all cases, except one where there is no record on the point. This is interesting in view of the fact that some American observers—for example, Perla (1936)—have noted a less frequent occurrence of adhesions in tuberculous diabetics than in tuberculous non-diabetics of comparable ages. Only one patient was noted as having died in coma. The most significant finding of all, however, was the absence of tuberculosis elsewhere, excepting one instance of miliary tuberculosis in the kidney. Even tuberculous laryngitis and enteritis, which are such common features of the tuberculosis necropsies throughout the records, were not found. No tuberculosis was noted in the pancreas. No instance of amyloid disease was recorded. Chronic non-tuberculous lesions were apparently not more common than might have been expected in a group of cases of which 75 per cent. were middle-aged. There were two cases of chronic kidney disease, two of fibrosis of liver, two of atheroma, one of renal calculus, and one of uterine fibroid. No significant differences can be made out in comparing the type of lesion found in the pre-insulin and the insulin period.

Summary of Data

The data may be summarized as follows:

1. The figures recorded are too few and of too selective a character to throw any statistical light on the question whether or not diabetics are more susceptible to tuberculosis than are the general population. No figures appear to exist for this country to confirm or refute the clinical impression that the diabetic is a favourable soil for the tubercle bacillus, but the extensive American figures on the whole support the view.

2. The majority of the patients in the present series were of the middle-age group.

3. The type of tuberculous lesion found was that of excavation with extensive caseation, often pneumonic or bronchopneumonic in distribution. The common sequel of tuberculous laryngitis and enteritis was not encountered.

4. No tuberculous foci were found elsewhere in the body (including pancreas), except one example of miliary tubercles in the kidney, evidently a terminal lesion.

5. No instance of amyloid disease was recorded.

6. Only one instance occurred in which there was any sign of quiescence.

7. No significant differences were noted in the necropsies of the pre-insulin and insulin periods.

Commentary

Obviously the diabetic is exposed to the same risks of infection as the rest of the population, but the salient features which stand out from this record are that (1) when tuberculosis developed in the diabetic it was almost invariably the uncomplicated pulmonary form of the disease, and (2) signs of healing of the tuberculous process were rare. These points confirm the observation of Perla on a comparable series of necropsies on diabetics and non-diabetics with tuberculosis, that in the former there is a greater rapidity of development of the tuberculous process. The effects of altered metabolism in the diabetic state are, however, so numerous that it is impossible at the present time to attribute to any one of them alone the blame for providing the favourable soil for the growth of the bacillus. Possibly the low respiratory quotient as found in the diabetic animal (Ralli, Canzanelli, and Rapport, 1931) and in certain cases of diabetes in man (Joslin, 1937) may be important in this connexion.

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Clinical Memoranda

Traumatic Rupture (Complete) of External Iliac Artery: Amputation: Recovery

This case, so far as I know, is unusual and, one might say, rare enough to justify publication.

CASE RECORD

A quarryman aged 35, while removing a "relief valve" from a Diesel engine which was still running—he standing in direct contact with the valve—was struck in the right groin. He was thrown backwards for about four feet and was very badly shocked. This took place at about 10.45 a.m. on April 12, 1938.

Some ten minutes after the accident he was seen by Dr. F. W. A. Watt of Tavistock, who telephoned to me about 11.15 a.m. The patient being badly shocked we agreed that I should call later in the day, thus allowing time for the shock to be treated in hospital. I saw him at about 4.30 p.m. the same day. His temperature was then subnormal, and his pulse, which had been taken every half-hour, was 130, very thin and wiry, and of poor volume. He was still badly shocked. His right leg was useless, the toe-nails were blanched, and there was no pulsation in the posterior tibial, popliteal, or common femoral arteries. This leg was considerably colder than the left. There was an enormous swelling which filled up the right Scarpa's triangle and extended into the right iliac fossa. It did not pulsate, nor was any pulsation felt or heard in either swelling. The skin was intact, but extensive bruising was present over the lower abdomen, not only on the right side but also on the left. This bruising also extended up the outer side of the abdomen into the right axilla as well as into the scrotum. It was perfectly clear that he had ruptured the right external iliac artery and that he would lose his leg, but as there was good reason to think that he had ceased to bleed, we decided to still wait until his recovery from the shock.

I was kept informed as to his progress from day to day, and saw him again on April 15. He then had a pulse of 80, of good volume and regular, and as we thought it unlikely that his general condition would improve further, we decided to operate the following morning—that is, April 16. The condition of the limb on April 15 was about the same; there was no pulse in any vessel, but on auscultation over the swelling in the right groin transmitted pulsation could be heard. By this time he had a distinct line of demarcation in the lower limb. This extended from a line about eight inches down from the iliac crest, horizontally inwards to a point about three inches below the pubic crest in front, to meet a line which practically took the gluteal fold behind.

The skin and limb were warm above these lines but quite cold below, with a patchy reddish-blue mottling. There was some sensation over the warm area, but none below. We did not consider it advisable to give him a blood transfusion, as his recovery from the shock had been so satisfactory, and we did not want to raise his blood pressure too much, as this might possibly again bring on bleeding.

Operation.—With a premedication of morphine and under light gas-and-oxygen anaesthesia I operated on April 16. I decided to use the extraperitoneal approach, and made my incision, as I thought, accordingly about three-quarters of an inch above Poupart's ligament, but on dividing the skin and deep fascia I came down upon the clot. This was rapidly turned out and confined below to the attachment of the deep fascia to that in the outer half of Scarpa's triangle, with Poupart's ligament elevated so that it took a concave shape with the external iliac, which was raised from its bed in the ilio-psoas and presenting itself under the middle of Poupart's ligament, leaving a space of at least 4 inches between the proximal and distal ends of the vessel. The lumen was filled with a firm clot, and one could clearly see the torn and twisted intima. I placed two floss-silk ligatures round the artery and vein, and as the patient's condition justified it I proceeded to do a quick amputation by unequal lateral flaps, cutting just above the line of demarcation described. The femur was divided about two inches below the great trochanter, the circulation in the muscles and bone being excellent. He stood the operation well, and was little the worse when it was finished. He has since made an uninterrupted recovery.

COMMENTARY

The "relief valve" which caused the injury is of solid steel eight inches in length; the outlet end, which carries a handle, has a diameter of three inches, and the inlet end has a diameter of two and a half inches. It weighs 12 lb. and was expelled at a pressure of 400 lb. to the square inch.

The interesting points of this case are:

1. The man was in contact with the valve, which must have struck the external iliac vessel at a point on the pelvic brim near where one would normally compress the common femoral vessel, completely dividing it.

2. Had he been standing a distance away, other than in direct contact with the valve, the chances of it breaking his pelvis and possibly rupturing his abdominal wall, with grave intraperitoneal injuries to viscera, vessels, etc., would have been considerable.

3. The importance of waiting, if possible, in cases of extreme shock could not be better exemplified than in this instance. Glucose and saline should be judiciously administered. A very close watch must be kept on the pulse, so as to avoid giving an amount that might raise the blood pressure and so bring on haemorrhage.

4. It was interesting to note at the end of three days the amount of collateral circulation that had taken place from the internal iliac and ilio-lumbar branches, a matter which is so important in cutting the skin flaps.

I am greatly indebted to Mr. L. W. Proger, to whom I sent the small specimen of the distal end of the vessel, for his kindness in looking through the Library of the Royal College of Surgeons for any record of such a case. This search proved unproductive, but he has kindly sent me a bibliographical list, although none of the publications, so far as I know, quite meet the case quoted.

Plymouth. H. G. PINKER, F.R.C.S.

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Two Compressed Foetuses and Living Baby as an Unusual Cause of Hydramnios

The patient whose case I report had probably started with a triplet pregnancy, including uniovular twins which had died when they were about five months mature, and at that time the hydramnios occurred. Owing, I presume, to the fact that there was still one living foetus and placenta, there was still enough of the necessary hormones available to prevent the expulsion of these dead foetuses, the living one growing normally and compressing the dead ones. The hydramnios was, I suppose, reabsorbed.

CLINICAL RECORD

A multipara, aged 29, with one child aged 4 years, consulted me on October 10, 1937, having had a slight vaginal haemorrhage of a few days' duration following two months amenorrhoea, the last menstrual period having started on July 30. On examination on October 19 she was not losing, the uterine os was closed, and she appeared to be about three months pregnant.

I saw her regularly, and the pregnancy progressed quite normally until December 23, 1937, when the uterus suddenly became enlarged to the size of at least a thirty-six weeks pregnancy, and the abdomen was so tense that foetal parts could not be felt. The patient complained of nothing except a little difficulty in bending, and as she had to go away the next day was not examined by *x* rays, though I warned her of the possibility of twins or some abnormality, and instructed her to see a doctor at her home if anything untoward occurred.

I did not see her again till February 28, 1938, when the uterus, though somewhat soft, was of normal size for the term of pregnancy, then about thirty weeks, having diminished considerably in size during the interval. Foetal parts, of one foetus only, could be felt per abdomen, one foetal heart only could be distinguished, and everything appeared to be normal. The pregnancy continued apparently normally until April 6, one month before the expected date for the baby to be born, when the patient started labour spontaneously and was delivered of a living male infant about four weeks premature, and weighing 6½ lb. After the delivery of the baby the uterus felt large and hard, but not large enough for the presence of a twin to be suspected. After ten minutes a second bag of membranes presented, and with only one further uterine contraction the placenta, together with an unruptured bag of membranes, which contained foetal parts, was expelled. On examination this proved to be twin foetuses, surrounded by and embedded in a brown clayey substance, each in a separate amniotic sac. There were two placentae; one of normal size, healthy, and with the cut cord of the living baby and its own amnion and chorion, was fused along one border with a shrivelled white fibrous one containing numerous infarcts and having two amniotic sacs, each containing one of the compressed foetuses, with two small cords and only one chorion. The twin foetuses were both female, and were not much macerated and were not deformed. They were 9 inches long and weighed approximately 12 oz. each.

The further history of the case is also of interest. After a perfectly normal puerperium with no pyrexia and good involution, what appeared to be a complete succenturiate placenta about 4 inches across, and with membrane attached, was passed on the eleventh day. The living baby for the first three weeks after birth suffered from projectile vomiting and intractable constipation, and caused us some anxiety. The pylorus was palpable and elongated, and he lost weight considerably. A diagnosis of congenital stenosis of the pylorus was made, but with small hourly feeds of expressed breast milk, and daily stomach and occasional bowel washouts, he made a good recovery, and at one month had entirely ceased vomiting, had nearly regained his birth weight, and was able to feed from the breast. He has got on well ever since.

Hastings. E. D. BLUNT, M.B., B.S., D.C.O.G.

Reviews

THE BACTERIOPHAGE

Le Phénomène de la Guérison dans les Maladies Infectieuses. By F. D'Herelle. (Pp. 416; 19 figures, including 4 plates. 75 fr.) Paris: Masson et Cie. 1937.

Professor F. D'Herelle has recently added to the already long list of monographs on the bacteriophage which come from his pen. This last one bears the title *Le Phénomène de la Guérison dans les Maladies Infectieuses*, but as a matter of fact it is only the second half of the monograph which deals with this problem, the first two hundred pages being devoted to a consideration of the bacteriophage and the technique of its study. Beginning with a brief historical account of the discovery of the bacteriophage the author considers in turn the technique of isolation of phages, how to obtain them in pure culture, the estimation of their virulence, phage mutation, and the characters and nature of bacteriophages. All this is presented in lucid style, and one notes that D'Herelle adheres to his original conception of the bacteriophage as a living autonomous parasite of bacteria. Considerable space is given to the question of the production of lysins by bacteriophages, and one gathers that the author considers that bacterial mutation is the result of phage action—bacterium-phage symbionts—and that opsonization of bacteria is brought about by phage lysins.

In the second half of the monograph the author discusses the role of the bacteriophage in the recovery from disease and the evolution of epidemics. For D'Herelle recovery from bacterial infections is a function of phage action, and cessation of epidemics is brought about by the dissemination of bacteriophage by convalescents. Bacteriophage therapy of various bacterial diseases is also discussed, and the results obtained are stated to be uniformly successful, so much so that one wonders why other methods of treatment are still employed.

X RAYS AND RADIUM IN DERMATOLOGY

X-Rays and Radium in the Treatment of Diseases of the Skin. By George M. MacKee, M.D. Third edition, thoroughly revised. (Pp. 830; 308 figures; 31 charts; 2 coloured plates. 45s. net.) London: Henry Kimpton. 1938.

There is no need to stress the importance of *x* rays and radium in the treatment of diseases of the skin. In fact it is difficult to imagine what the practice of dermatology would be like if suddenly deprived of these powerful therapeutic agents. The textbook before us, which is now in its third edition, is certainly the fullest and most complete account of the subject in the English language. Dr. MacKee has been interested in radiotherapeutics for many years, and this book first appeared nearly twenty years ago. In this, the third edition, he has had the benefit of the assistance of a large number of collaborators who have contributed chapters on those sections of which they have special knowledge. In particular, Dr. Edith H. Quimby has written important chapters on the physics, biology, apparatus, and measuring instruments required, and dermatologists who wish to have more than a rule-of-thumb knowledge of what they are doing should study her writings with care.

The clinical part of the book is mostly written by Dr. MacKee himself, whose clinical experience is unrivalled, but in certain departments other physicians have collaborated with him. There is also an interesting and important chapter on the medico-legal aspects of *x*-ray and radium therapy by Mr. Harold Bouton. This is founded, of course, upon the legal practice and procedure in vogue in the United States of America; but, after all, since the legal system of this country is founded on the same principles, it will be read with interest by British dermatologists. Many will be anxious to see what opinion Dr. MacKee has of the value of the so-called Grenz rays, which are really *x* rays of long wave-length which will not penetrate ordinary glass, and consequently necessitate the use of tubes in which a window made of special lithium borate glass is set to permit their escape. Some optimistic workers have prophesied that these rays will one day entirely replace *x* rays of shorter wave-length in dermatology, but Dr. MacKee does not agree. He is of opinion that enough work has not yet been done to substantiate the rather extravagant claims made by Bucky and others on their behalf. We have to add that, like most other American books, this volume is well printed and well illustrated, and well furnished with references to original papers. It should be in every dermatologist's library.

MEDICAL WOMEN IN PAST AGES

A History of Women in Medicine from the Earliest Times to the Beginning of the Nineteenth Century. By Kate Campbell Hurd-Mead, M.D. (Pp. 569; 70 illustrations, including a frontispiece. 6 dollars.) Haddam, Connecticut: The Haddam Press. 1938.

Dr. Kate Hurd-Mead deserves well of every woman who has adopted medicine as a profession. She has read much and travelled widely to produce an excellent and well-illustrated *History of Women in Medicine*. It has the double merit of being interesting as well as accurate, except for a few slight errors of fact. The history begins with medicine in primitive times and is carried down the ages until the eighteenth century. The method is to consider the practice of medicine by women in its relation to contemporary social history. The book therefore contains many details of the domestic life of women at various periods independently of their professional work, and this alone would make it attractive to the general as well as to the professional reader.

It appears that from classical times until the end of the fourteenth century women held a recognized position in medicine, acting for the most part as advisers, often as curers of minor ailments, and sometimes as operating surgeons. Midwifery was always in their hands, but in every country at one time or another they were licensed to practise medicine, and in a few universities they were allowed to graduate on the same terms as the male students. This was especially the case at Salerno, and Dr. Hurd-Mead makes a brave fight for the corporeal existence of Trotula, the woman doctor whose influence on midwifery lasted for so many hundred years that her name has come down to our own times as "Dame Trot." Many great names are brought under review. Dr. Hurd-Mead believes that both Moses and his wife Zipporah were instructed at the medical school at Heliopolis. It is certain that Aristotle was helped by Pythias his wife in collecting material for some of his scientific treatises. Many royal ladies were interested in and some actually practised the medical art. St. Hilda of Whitby, Queen Margaret of Scotland, the good Queen Maud (wife of Henry I), Eleanor of Aquitaine, Berengaria, and St. Hildegard are all commemorated. Then came a long period of eclipse when women were relegated to minor duties in the sick-room, though, as in London, in the seventeenth century they

received special instruction before they were licensed to practise as midwives.

The book must necessarily reach a second edition, so a few minor errors may as well be pointed out. The caption of the illustration facing page 232 is clearly wrong. The ward is in a French, not an English, hospital; the sisters are engaged in the homely task of making the bolsters which preceded sandbags and not in sewing dead patients into their shrouds as is stated. Mirfeld (p. 262) was only in minor orders and was certainly never a prior; Mr. John Flint South has been confused (p. 269) with Sir James Paget, and his work should be quoted as the memorials, not the memories. But these are only minor blemishes in a very satisfactory and pleasant book, which is provided with an excellent index and a list of errata.

FRACTURES AND DISLOCATIONS

Fractures and Dislocations for Practitioners. By Edwin O. Geckeler, M.D. (Pp. 252; 213 figures. 18s.). London: Baillière, Tindall and Cox. 1937.

The author tells us in his preface that this book is written as a complete yet simplified guide to the management of bone and joint injuries, his purpose being to condense the subject of fractures and dislocations without omitting important details. He has achieved his object in an attractive little work of convenient size, clear print, and good illustrations, and has been enabled to do so by adopting the sound policy of advising only what he considers the one most practical method of dealing with a particular lesion. There is much to be said for this in a guidebook because, as the author points out, in emergencies the choice of the most appropriate treatment may be both confusing and time-consuming.

The work is divided into two parts, the first dealing with fractures, the second with dislocations. Provided the initial treatment is adequate, only a very small proportion of fractures require open reduction, and therefore description of operative technique has been limited to that of skeletal traction and subcutaneous leverage. Plaster technique is explained in detail, and an interesting chapter deals with follow-up treatment. This practical little guidebook should not only prove useful as a work for ready reference but also be of value to the busy practitioner who wishes with a minimum of effort to familiarize himself with modern methods of fracture treatment.

APPROACH TO PHYSIOLOGY

The Living Body: A Textbook in Human Physiology. By Charles Herbert Best, M.D., D.Sc., F.R.S., and Norman Burke Taylor, M.D., F.R.C.S.Ed. (Pp. 563; 283 figures; 15 coloured plates. 3.60 dollars.) New York: Henry Holt and Company. 1938.

The approach of students, including medical students, to the subject of physiology is a matter of the greatest moment. Its basic importance to medicine, which can only be freed from mumbo-jumbo by a proper appreciation of its principles, together with its fundamental value as a subject of general education, make it one of the most useful of modern sciences. As a rule the medical student at the outset of his physiological studies chooses one of the larger textbooks, often of vocational flavour, and most teachers will agree that the consequences of such an introduction are by no means good. Yet teachers of the subject will also generally agree that elementary textbooks often leave much to be desired, or may even be positively misleading. Leading investigators are often insufficiently acquainted with the broad outlines of the subject, and competent teachers too occupied, or have too much of an eye to examination needs, to devote time and thought to the preparation of a book that might bring them little kudos, or even some scorn from their highbrow colleagues.

It is a hopeful sign of the times that two such distinguished physiologists as Professors Best and Taylor, the one world-famous for his own research, the other as a teacher and investigator, should have bent themselves to such a task. It is an agreeable task for a reviewer to be able to say that they have done a true service to their subject, and that their work will be of value.

In this book the main facts of physiology, brought right up to date, have been presented in a readable, informal, and accurate manner. Apart from some of the half-tone blocks which have come out poorly, the illustrations—283 in number—are well chosen and often original. Some preliminary knowledge of physics and chemistry is assumed on the part of the reader, but little biology, histology, or anatomy is expected. The authors state in their preface that the book is "written primarily for the usual college course in human physiology," a statement which indicates that Canada can give us points in general education: they also had "in mind its use as a text in nursing schools as well as in the physiological instruction of dental and agricultural students. Students of medicine may find it serviceable in gaining a bird-eye view of the subject before reading more detailed texts." Its scope in Great Britain should be much the same; in fact we should be happy if nurses and dental students had knowledge to so good a standard. The book is a good job well done, and it can be heartily recommended.

STATISTICAL METHODS IN MEDICINE

The Treatment of Clinical and Laboratory Data. An Introduction to Statistical Ideas and Methods for Medical and Dental Workers. By Donald Mainland, M.B., Ch.B., D.Sc. (Pp. 340; 23 figures. 15s. net.) Edinburgh and London: Oliver and Boyd. 1938.

Professor D. Mainland's book, *The Treatment of Clinical and Laboratory Data,* like Dr. A. Bradford Hill's recently published *Principles of Medical Statistics,* is intended to provide first aid to medical men and laboratory workers in the use of statistical methods. Dr. Hill's book covered a rather wider field. Professor Mainland's book gives more detail, particularly with regard to the handling of small samples. Practically all the methods of statistical analysis likely to be of use to a medical worker not primarily concerned with epidemiological or official vital statistics are lucidly explained or illustrated. The methods of Professor R. A. Fisher rightly receive particular attention; indeed the book is, in a sense, an introduction to that author's treatise, issued by the same publishers. This, however, is not to say that Professor Mainland is a mere compiler. At several places—for example, pp. 131 *et seq.*, pp. 283 *et seq.*, and in his discussion of the interpretations of particular results—criticisms and suggestions put forward have been the product of medical knowledge and experience well used. We think the author's treatment sound. We should, perhaps, have been inclined to stress even more than he does the limitations of usefulness of coefficients of correlation. Galton's original idea of regression retains all its value, but few statisticians now attach much importance to coefficients of correlation "in the air," dissociated from the notion of regression. We have no doubt that any medical man or laboratory worker who reads this book carefully will avoid pitfalls in which many writers are entangled almost daily.

Notes on Books

The *Year Book of Neurology, Psychiatry, and Endocrinology* continues its useful career. In the volume for 1937 attention is called to the tendency to rely on the development of electric and acoustic technique to investigate the functions or dysfunctions of the nervous system, though the editor regrets the lack of synthesis of the vast research material which leaves many clinical syndromes unexplained. There is a full discussion of the treatment of schizophrenia by insulin, and of the therapeutic value of oestrogenic hormones. It is emphasized that the need for clinical discrimination in endocrinology is still urgent. Towards that end this volume should certainly be helpful. It is published in this country by H. K. Lewis and Co. at 12s. 6d. (postage 6d.).

GORDON W. ALLPORT'S *Personality: A Psychological Interpretation* is published by Constable and Company at 16s. In this highly technical and not very readable book the author attempts to study the laws which determine the mental constitution of the individual in contrast to the general laws of mental process supposedly applicable to most or all individuals. He defines personality as "the dynamic organization within the individual of those psychophysical systems that determine his unique adjustments to his environment." In order to understand personality the units of analysis must not be too simple, and the author lays stress on what he calls traits. The book is divided into five parts. The first is historical and discusses the various methods of approach. The second discusses the origins, growth and maturation of personality; the third and fourth the units of structure and analysis of personality respectively; and the fifth the understanding of personality.

Mental Deficiency by J. DUNCAN is published by C. A. Watts and Company as No. 10 of their "Changing World Library," and costs half a crown. It is a pleasantly written essay which covers the ground from the educational rather than the medical point of view, since the author is head master of a special school. He lays stress on the importance of the backward group in the population and points out that both these and the feeble-minded may learn, though they can only be taught with difficulty, and that modern methods of education may not be best suited to their needs. He regards this group as potentially of great danger to the community, and thinks that the only solution lies in selective breeding, the spread of birth control knowledge among the "lower" classes in the true sense of the word, and some measure of State control over those who have produced mentally defective children.

Gestalt psychology has won many adherents amongst those interested in both normal and abnormal mental processes. That the mind deals with "units" of fairly elaborate complexity rather than with conglomerations of sense perceptions seems a reasonable conception and is certainly useful in helping to explain many phenomena which obtrude themselves on our attention in the study of mental mechanisms. *A Source Book of Gestalt Psychology* by WILLIS D. ELLIS (Kegan Paul, 21s.) is a well-arranged series of abstracts in English of the papers, published chiefly in German between 1912 and 1929, on which the theory has been built up. The reader may discover from these that Gestalt psychology is not merely an armchair construction of what perhaps might happen—and if it did how convenient it would be for our understanding of the mind—but that it is derived from a long series of controlled experiments both of animals and man. The author has sought and has certainly largely succeeded in giving "experimental respectability" to his subject.

The first edition of Dr. C. SEYFARTH'S little book, *Der Arzte-Knigge*, on the duties, responsibilities, and behaviour of hospital residents, was noticed in this column on October 26, 1935. That a third edition has now been called for seems a proof of its usefulness. The publisher is Georg Thieme of Leipzig; price RM. 4.80, plus 25 per cent. abroad.

Dr. H. E. COX'S *Chemical Analysis of Foods* is a useful little laboratory manual which has proved its worth by the call for a second edition. The new edition (J. and A. Churchill, 21s.) shows manifold signs of attentive revision, and although there is no great increase in the bulk of its contents the new presentation is such as to give the book the stamp of being fully up to date. The matter is condensed to the extent necessary for its usefulness as a laboratory manual, but is nevertheless adequately descriptive. Apart from the requirements of unusual investigations this book will provide a working scheme for the chemical analyses of all ordinary foods.

Preparations and Appliances

A MASTOID BRIDGE FORCEPS

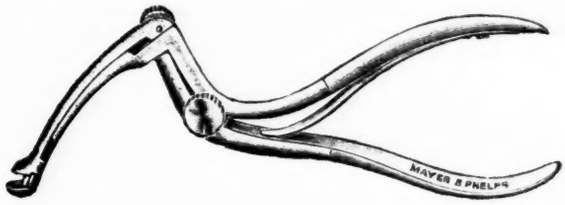
Mr. T. G. WILSON, M.B., F.R.C.S.I. (Dublin), writes:

It has often occurred to me while performing the radical mastoid operation that the final stages of removing the "bridge" would be much facilitated by the use of a suitable punch forceps. The instrument-makers' catalogues illustrate several forceps which could be used for the purpose, but none of them seemed to me quite satisfactory. I therefore commissioned Messrs. Mayer and Phelps to make up a "bridge" forceps to my design, as illustrated by the accompanying engraving. Its principal features are two:

(1) The angle of bite is greater than a right angle, so that the lower jaw can more readily fit into the aditus.

(2) The curved shank allows the action of cutting to be easily seen.

The instrument is made on sound, and therefore efficient, mechanical principles. The method of use is quite simple.



The bridge is reduced to a thickness of about one-eighth inch, or more in the case of children, by the usual method. It is then seized by the forceps and cut away with a slight rocking motion. After this mallet and chisel are again resorted to, but the use of the forceps will be found to have saved a considerable amount of time. To junior surgeons, with whom the facial nerve is still a bugbear as well as a landmark, the added security given by the use of the forceps should prove a boon.

OVARIAN HORMONES

The "gynoestryl" products (Roussel Laboratories Ltd., 30, Cavendish Square, W.1) include the following products: (1) Gynoestryl tablets, each of which contains 0.025 mg. oestradiol (250 international units). (2) Benzo-gynoestryl ampoules, which contain oestradiol benzoate in strengths of 0.1, 1, and 5 mg. per ampoule. Oestradiol benzoate 1 mg. corresponds to 10,000 international units. (3) Sedo-gynoestryl ampoules, which contain oestradiol 0.1 mg. with sodium bromide and hyoscyamus extract.

Ovarian hormones are finding increasing clinical uses. The makers suggest a total dosage 1 to 2 mg. by mouth of oestradiol benzoate for treatment of ovarian hypofunction and about ten times this dose for treatment of severe ovarian deficiency.

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THE PLYMOUTH MEETING

The pace set by the organizers of Annual Meetings has of recent years perceptibly quickened. Each successor has determined not to be outdone by his predecessor—and even to outdo him. So long as the desire to emulate does not provoke too much anxiety or strain, this competition in the production of excellence should be all to the good. But perhaps the time has come when they may well ask themselves the difficult question, "Wherein does excellence lie?" Is it in the magnificence of the receptions, the number of the excursions, the tonnage consumed of food and drink, the intensity of private and public hilarity? Before this question is examined further it must be said at once that Plymouth, with the high example set it by Belfast, played to perfection the part of generous and charitable host. The city took the B.M.A. into the ordered routine of its domestic existence with such a friendly disregard of pomp and circumstance that for a short week the visitor felt himself indeed to be a Plymothian. Each Annual Meeting has its own atmosphere, and the prevailing emotional tone of the Plymouth Meeting was one of domestic friendliness. It was a family affair, and it was fittingly presided over by one who for years had been a family doctor, Dr. Colin Lindsay. It was a happy chance that at this moment, when the general practitioner is being assailed from all points of the compass, he should find himself so worthily represented in such high office by one who epitomizes in his own person those qualities of sincerity and integrity that are the hall-mark of the English doctor. The need for such men is paramount.

Dr. Lindsay was ably and energetically seconded by those two hard-working members of any Annual Meeting team—the Honorary Local General Secretary, Mr. Cyril F. Mayne, and his assistant Dr. T. T. P. Murphy. We should like, too, to pay tribute to the gracious President of the Ladies' Section, Mrs. Lindsay, and to all those who, working under her guidance, arranged things so well for the wives and daughters of the menfolk. These efforts were aided by the beautiful country round Plymouth, the rivers and the moorland, and the warm sunny weather that prevailed, and were seconded by the kind attentions of the Civic and Naval authorities. The scene was set for enjoyment. We would not for one moment undervalue the importance of the social side of an Annual Meeting, nor even suggest that this was too heavily stressed at Plymouth. But attention should be drawn to the fact that during recent years social events have tended to lure people from the Scientific Sections. This is not to the good. The excellence of an Annual Meeting must in the last resort reside in the debates conducted by the Representative Body and the discussions held at the Section meetings. The latter, coinciding with the height of the social activities and coming towards the end of the meeting, inevitably suffer more than the former. The "representative mind" comes off decidedly worse than the Representative Body, which argues a lack of balance between the two.

The generally poor attendance at the Scientific Sections was by no means a reflection on the standard of the papers read or of the discussions that followed them. One of the most successful was the combined meeting of the Sections of Orthopaedics and Fractures and of Neurology and Psychological Medicine, when Professor Joseph S. Barr drew attention to the significance of the prolapsed disk in the aetiology and treatment of sciatica and Professor H. Olivecrona to the possibility of treating spasmodic torticollis by section of the cervical nerves. The discussion on organotherapy held by the Section of Medicine attracted a good deal of attention, and in that on anxiety states in general and industrial medicine the remark of one speaker that it was important to "get hold of the children" drew from Dr. T. A. Ross the apt retort that it was more important first of all to get hold of the medical student. But the most stirring event was the description given by Mr. R. R. Blewett of the medical and social changes that had taken place at St. Day, a derelict mining area in Cornwall. We would also mention the excellent films that were demonstrated on the three days the Scientific Sections met, those by Mr. L. O'Shaughnessy on surgery of the heart and by Dr. C. C. Ungley on liver therapy and on polyneuritis being of special interest.

The Annual Representative Meeting was notable for one event—the last appearance in an official capacity of Dr. C. O. Hawthorne, who has decided no longer to seek election to the Council. The warm reception that greeted him on the platform must have assured him of the affection and esteem in which he has been held for many years. His gift of silvery speech and his constant upholding of principle when this was in danger of being overcome by expediency have for long been the admiration and instruction of those who listened to him. In spite of Dr. Hawthorne's

eloquent and logical opposition, the Representative Body voted overwhelmingly in favour of the recommendation that "a measure of recognition be accorded to chiropodists." One of those who argued on behalf of this recommendation spoke with gratitude of the chiropodist who had "spotted" two cases of diabetes for him, which perhaps rather begs the question, "What is a chiropodist?" Apart from this the meeting was enlivened by a discussion on the activities of the Association in the field of propaganda and publicity, and the Representatives went into committee so that the fullest freedom of speech could be allowed. The champion of democratic principles, Dr. Murray of Banff, made an eloquent attack on what he considered to be the unconstitutional action of the Council in setting in train a new line of policy without first of all consulting the Divisions. But his indictment was more than matched by the masterly presentation of the "case for" by the Chairman of Council, who as a speaker goes from strength to strength. His skill in debate coupled with the quick watchfulness of the Chairman of the Representative Body for any departure from the business in hand indeed made the "platform" appear at times too strong for those in the body of the meeting. Nevertheless the Representative Body showed on more than one occasion that it had a lively sense of its responsibilities and was zealous on behalf of the rights of the general practitioner, as could be seen in the modification it secured of paragraph 101 of the revised scheme for a General Medical Service for the Nation.

The local and the national newspapers have always been generous in the attention they pay to the Annual Meetings of the Association, and it is not safe to make comparisons between this year and former years. But the impression remains that printers' ink has flowed more freely than before, and that there has been more comment, and more informed comment, than previously. This must be to the general advantage, because the public in many respects is still lamentably ignorant of the aims of Medicine and the means it wishes to adopt to achieve them.

THERAPEUTIC ABORTION AND THE LAW

The true physician's only desire is to do his best for his patient. His problem is often to choose between two evils: the possible ill-effects of his treatment, and the probable consequences if he does nothing. The gynaecologist sees many pregnant women who, if they go to term, will probably suffer some harm. This may be slight, or so grave that it will almost certainly cause death. In many of these cases he is convinced that an abortion is in the best interests of the patient. His choice, however, is complicated by the knowledge that if he terminates pregnancy he will destroy a potential life, and also that the law forbids abortion in some circumstances. Many doctors have for a long time been anxious to know exactly what the law allowed them and did not allow them to do. They found one answer only. The Offences Against the Person Act, 1861, Sect. 58, said that a person who "unlawfully" used an instrument with intent to procure the miscarriage of a woman committed a felony for which he could be punished with penal servitude for life. They asked the meaning of "unlawfully" and were told that it had never been defined, either by Parliament or by a judge, but that the law almost certainly allowed the termination of pregnancy for the purpose of saving the mother's life. When they discussed the subject among themselves, they found wide variations of opinion on what the law was—apart from much wider variations of opinion on what the law ought to be. They felt anxious and insecure, and a strong movement grew up among them to have the law clarified.

At the same time, a number of lawyers who had paid special attention to the problem were aware that the law was vague, but felt convinced that this very vagueness was a good thing. They realized much better than the doctors the essence of the English legal system: a man may do anything which is not expressly prohibited by law; and where authority is lacking the law is written in the hearts of the people, to be interpreted by the judges. The undefined word "unlawfully" allowed the authorities to give the medical profession, whom they knew to be with very few exceptions not only responsible but conscientious, a free hand to decide for themselves what was lawful in therapeutic abortion. The lawyers were content, in other words, to assume that an abortion was carried out lawfully when a doctor performed it in good conscience, after careful thought and observation and under proper conditions, for the substantial benefit of the patient. They felt that, so long as the law refrained from saying what a doctor could do, the question of what he could not do need not arise so long as he acted bona fide; he could be left outside the sphere of criminal law and practice altogether, and the police could devote their energies to detecting and prosecuting the people against whom the statute was directed—namely, the professional abortionists, lay or medical, about the unlawfulness of whose activities there was no possible doubt. This attitude, however, did not allay the anxiety of medical men, and

the situation was resolved last week in an English court of law.

Mr. Aleck Bourne has for some time been among the chief of those who have desired to know clearly where they stood under the law. He is a leading obstetric surgeon with keen clinical and psychological insight. He felt that in some cases, to do his best for his patient, he must perform an abortion. He also felt that the true interpretation of the law must allow abortion where it was in the best interests of the patient, and he formed the resolution to take the first suitable opportunity of having the legal position made clear. In this country a legal ruling can only be obtained in relation to a particular case, whether it be a civil action or a criminal prosecution. He was therefore prepared to take the extreme course of risking his liberty, life's work, and reputation by submitting to a criminal prosecution in which the Crown would differ from him on the interpretation of the word "unlawfully." As it happened, when the suitable occasion arose he was barred by a promise of secrecy from actively presenting himself as a sacrifice, and it is understood that the Crown moved on information which he had not supplied. A girl less than fifteen years of age was assaulted by some soldiers and raped under as revolting a set of circumstances as could be imagined. She became pregnant and was taken to see Mr. Bourne, who admitted her to St. Mary's Hospital for observation. He had a strong bias from the beginning in favour of an abortion, but he did not perform it until he had satisfied himself, by tests and observation, that the girl would in all probability, if she had gone to term, have suffered grave and lasting nervous damage which would have expressed itself in psychoneurotic and physical illness perhaps for the whole of her life. Though he acted openly, he did not consult any of his colleagues, his reason being that in such cases he was accustomed to act as the "second opinion" himself. He was charged under Sect. 58 of the Act of 1861 with unlawfully using an instrument with intent to cause miscarriage, and the case turned on the interpretation for the first time of the word "unlawfully."

The trial took place on July 18 and 19 at the Old Bailey before Mr. Justice Macnaghten,[1] and will long be remembered as one of the most remarkable that has ever taken place, even in the Old Bailey. The accused was treated throughout with admiration and respect; his motives were regarded with what must have been almost unanimous approval. It was less a criminal trial than a co-operative effort by judge, jury, counsel, and witnesses to create law out of strong but ill-defined feeling. The foundation was laid by the judge after the Attorney-General, Sir Donald Somervell, K.C., had closed the Crown case: he defined the word "unlawfully" by importing a phrase from the Infant Life Preservation Act, 1929. That Act was passed to prevent the killing of a child in the short interval when it is capable of being born alive and therefore comes outside the law of abortion but has not yet acquired an existence independent of that of its mother and therefore cannot in law be murdered. Sect. 1 of that Act contains a proviso that no person shall be found guilty of the offence of child destruction unless it is proved that the act which caused the death of the child was not done in good faith for the purpose only of preserving the life of the mother. The learned judge held that this proviso expressed what had always been the law in regard to abortion and was implicit in the word "unlawfully" of the 1861 Act. He therefore ruled that the question for the jury would be: "Has the prosecution proved to your satisfaction, beyond reasonable doubt, that the act which Mr. Bourne admittedly did was not done in good faith for the purpose only of preserving the life of the mother?"

No one doubted Mr. Bourne's good faith, but he himself admitted that he had not acted to save the girl from immediate death. The next step in the case was therefore to determine the meaning of the phrase "preserving the life of the mother." There was no doubt that the girl's health would almost certainly have been gravely injured. In fact, the Attorney-General greatly clarified the case by admitting as much at the end of his closing speech. He said, "I do not minimize the possible mental effects of which Mr. Bourne and the other doctors spoke. The question is whether those mental effects, grave as they are, justify under the law the termination of pregnancy." In answering that question the judge used words which will probably be quoted for a long time to come as a statement of the attitude which the law requires of the doctor who performs a therapeutic abortion. He said, in effect, that no line can be drawn between danger to life and danger to health; that no doctor knows whether life is in danger until the patient is dead; and that if on reasonable grounds, based on adequate knowledge, after consultation with colleagues, a doctor forms the opinion that the probable consequences of the continuance of pregnancy would make the woman a physical or a mental wreck, then he is not only entitled, but it is his duty, to perform an abortion. In saying this his Lordship was—most fortunately—saying that the law and the physician's duty are in harmony. To preserve a woman's life, he implied, is not merely to save her from death; it is also to save

[1] *British Medical Journal*, July 23, 1938, pp. 199–205.

her from illness which would destroy so much of her life that it would hardly be worth living. With this view the jury agreed, as is shown by their verdict, and it is now the declared law until it is corrected or modified by the Court of Criminal Appeal in some other case.

The trial Rex *v.* Bourne has therefore ventilated the whole subject of therapeutic abortion and produced a statement of the law which substantially allows the conscientious medical man to do what he has been doing already. But the law, hitherto vague, has now been clarified, and after the Ministry of Health's Inter-Departmental Committee on Abortion (the Birkett Committee) has issued its report it may be clarified still more.

TREATMENT OF MALARIA

Methods for the treatment of malaria, and particularly for personal prophylaxis, still furnish a field for controversy, as two recent *Bulletins of the Health Organization of the League of Nations* show.[1] Despite the claims and hopes that have arisen the drug prophylaxis of malaria is still far from satisfactory. It is true that plasmoquine in relatively large doses can exert a lethal action on sporozoites, but in doses which may safely be continued for long periods its value is very slight; neither can atebrin, excepting in large doses, nor quinine be considered true causal prophylactics, since experimental evidence, which is supported by practical experience, shows that their action on sporozoites is doubtful. The findings of the third report of the Malaria Commission, published in June, 1933, based upon experiments with *P. vivax*, therefore still stand: "Up to the present no drug is known which, when taken in harmless doses during the period of infection, will effectively destroy the causal organism of malaria (sporozoites) before they are able to continue their life cycle in the human host." Nevertheless, the regular use of either quinine or atebrin may be of value through the inhibiting effect these drugs exert upon the development of the asexual forms of the malaria parasite whereby clinical manifestations are damped down or suppressed. For this purpose atebrin has not proved clearly superior to quinine and possibly may be more toxic. Furthermore, the harmlessness of quinine makes it a suitable drug for administration by subordinate personnel without constant medical supervision, whereas such supervision is essential in the case of atebrin. There therefore seems little ground for displacing the established daily dose of 5 grains of quinine where personal prophylaxis of malaria is practised. The report concludes that in primary infections a mean daily dose of 15 grains of quinine may bring about the disappearance of trophozoites of benign tertian or quartan malaria on an average on the third day, although relapses occur in a percentage of individuals which may be as high as 50; in the case of malignant tertian infections doses up to 30 grains daily may be necessary. Quinine, in the doses indicated, exercises its parasiticidal activities on the young forms of *P. vivax* and *P. malariae* capable of producing gametocytes, and also on fully developed gametocytes, but on the fully developed gametocytes of *P. falciparum* its action is only very slight. Quinine therapy with the usual dose has no adverse effect on the patient's general condition, and is generally free from depressive or toxic action if the period of administration is limited to the number of days strictly necessary; nor is there any good reason for thinking that this treatment hinders the process of immunization. Atebrin in daily doses of 0.3 gramme has a slightly more rapid action on trophozoites of *P. vivax* and *P. malariae* than quinine in the usual dose of 15 grains: on the trophozoites of *P. falciparum* differences between the strains of parasites prevent the drawing of uniform conclusions. The parasiticidal action appears to continue for a longer period in that the phase of latency lasts rather longer after the end of treatment than with quinine. The action on gametocytes is like that of quinine. Unfortunately, the yellow coloration of the skin is a disadvantage, especially during prolonged prophylactic treatment, and the drug may have other toxic effects. The action of plasmoquine on the trophozoites of *P. vivax* and *P. malariae* is slight and on those of *P. falciparum* almost *nil*, though on the gametocytes its effect is marked. There is therefore no advantage in using plasmoquine alone to combat the symptoms of an acute attack in any of the forms of malaria. The simultaneous administration of atebrin and plasmoquine appears to aggravate the toxicity of each, and is not to be advised. The consecutive treatment with atebrin first, followed by plasmoquine, has no appreciable influence on the clinical manifestations or the proportion of trophozoites in the blood, but the method has the advantage of decreasing and devitalizing the gametocytes, especially those of *P. falciparum*; moreover, from the clinical point of view it diminishes substantially the number of relapses. The combined use of quinine with plasmoquine causes less frequent and less intense toxic symptoms than that of atebrin with plasmoquine. There is therefore no particular contraindication to the simultaneous use of quinine and plasmoquine, and the method has the advantage that the duration of treatment is shortened. It is stated that the association of quinine with plasmoquine represents one of the most efficacious methods of treating benign tertian and quartan malaria. Average doses of quinine and plasmoquine greatly reduce (perhaps more than any other method) the number of relapses in benign tertian and in some cases also in malignant tertian.

[1] *Bull. Hlth. Org. L. o. N.*, 1937, **6**, 683, 895.

CALCIUM AND THE FOETUS

The quantity of calcium administered annually to pregnant women is so enormous as to be only computed in terms of tonnage, for it has become customary to prescribe this mineral almost as a routine during pregnancy. That this is justified has been proved in innumerable researches, and it is certain that it effectively prevents the almost universal drop in serum calcium in the later months of gestation. The effect on the foetus

has, however, been generally ignored, and Finola and his colleagues[1] have now drawn attention to possible dangers in this connexion. In an exhaustive investigation they found that the normal foetal excess of serum calcium and inorganic phosphorus was increased by the administration of these minerals during pregnancy, and that there was, moreover, definite evidence of increased bone density in the majority of infants born of mothers so treated. The significance of this latter finding leaps to the eye, for it is obvious that excessive osteosclerosis in the foetal skull might restrict moulding. In the great majority of cases this is of little importance, but it is conceivable that it might be crucial in a "tight fit" disproportionate labour. That this does not occur more often is perhaps due to the fact that calcium is usually prescribed in a practically unassimilable form; but where it is given scientifically (as dicalcium phosphate combined witht vitamin D) this possible cause of dystocia should be borne in mind, and the drug supplied to women with undersized pelves only where indicated by an abnormally low calcium content.

RESPIRATORY MOVEMENTS IN COLLAPSED LUNGS

The movements of the lung when collapsed by an artificial pneumothorax have been studied radiologically by Andrew L. Banyai.[2] In each patient radiographs were taken at the end of inspiration and expiration, the margin of the collapsed lung was outlined, and the pulmonary area was measured by means of a planimeter. The radiological-respiratory ratio—that is, a hundred times the radiological area at maximum expiration divided by the radiological area at maximum inspiration—was then calculated. This ratio is inversely proportional to the extent of the respiratory excursion. In collapsed lungs it varied from 54 to 99, indicating that in some patients respiratory movement persists in such degree that the radiological area of the lung in inspiration is almost twice as large as that in expiration, whereas in others the respiratory excursions of the treated lung are almost *nil*. Banyai found that so long as the intrapleural pressure remained negative the movements of the affected lung were determined mainly by the stage of deflation and the movements of the overlying thorax; he indicates how both these factors are to be measured. Changes in this relationship may be caused by various factors, such as the extent and type of the tuberculous lesion and particularly the presence or absence of extensive fibrosis or consolidation, pleural effusion, extensive adhesions, contraction of the thorax, the condition of the respiratory muscles, and the extent and type of disease in the contralateral lung. The radiological-respiratory ratio was between 50 and 69 in half the patients investigated, between 70 and 89 in 45 per cent., and between 90 and 99 in only 5 per cent. A comparison with a control group of normal persons showed that a respiratory ratio between 90 and 99 was not found in healthy individuals; on the other hand, the proportion of respiratory ratios between 50 and 59, indicating marked respiratory excursions, was four times greater in the pneumothorax group than in the controls. The author emphasizes the fact that the conclusions based on investigation of the movement of the entire collapsed lung are not applicable to the diseased part of that lung. The movement of the affected area was less than that of the uninvolved area in 63 per cent. of cases, equal to it in 25 per cent., and more than that of the unaffected lung area in the remaining 12 per cent. When the radiological-respiratory ratios derived from the measurement of forced respirations are reduced proportionately to a level corresponding to that of quiet respiration, it becomes apparent that the respiratory excursions of a diseased area can be substantially restricted by an artificial pneumothorax. Marked limitation of movement followed the induction of a pneumothorax in 19.5 per cent. of cases; and these patients had respiratory ratios between 90 and 99, which do not exist in normal persons. Further comparison with healthy adults showed that the proportion of respiratory ratios between 80 and 89, indicating limited movement, was more than three times greater in the group in which the movements of the diseased area in a collapsed lung were measured than in the controls. Occasionally, however, a pneumothorax seems to increase rather than decrease the respiratory excursions of the diseased lung. Finally, comparison of the respiratory excursions of the lung before and during treatment by artificial pneumothorax revealed that the movement of the diseased area of the treated lung was less than that of the entire lung before treatment in 54.5 per cent.; the movement of the two areas was much the same in 18 per cent.; and the extent of the movements of the diseased area during treatment was greater than that of the entire lung before treatment in 27.3 per cent.

[1] *Amer. J. Obstet. Gynec.*, 1937, **34**, 955.
[2] *Amer. Rev. Tuberc.*, 1937, **36**, 740.

"THE SIGN OF THE CLAVICLE"

As far back as 1927 Dr. G. C. Higouménakis[1] of the staff of the Evanghélismos Hospital (Athens) and head of the skin and venereal diseases departments drew attention to the fact that in congenital syphilis the sternal end of the clavicle is sometimes enlarged, and since then he has come to the conclusion that it is one of the most certain and most common stigmata of the disease and is met with neither in healthy persons nor in those with acquired syphilis. The swelling is due to a hyperostosis resulting from a syphilitic osteitis, and there are three reasons why it should occur at this site. The first is anatomical. The inner third of the clavicle is derived from a secondary centre which appears from the eighteenth to the twentieth year, whereas the acromial end and middle are ossified early from a centre which appears from the thirtieth to the thirty-fifth day of intra-uterine life. Also, the ossification of the clavicle takes place directly from connective tissue and, unlike the other long bones, without preformed cartilage. Secondly, the *Sp. pallida* has a predilection for connective and lymphatic tissue. Thirdly, by reason of its function the sternal end of the clavicle—particularly the right—is irritated by

[1] *Ann. Derm. Syph.*, Paris, 1937, **8**, 939.

continued shocks due to the movement of the arm, and, being membranous bone like the flat bones of the skull, is a convenient place for the *Sp. pallida* to settle in. When the patient begins to use the arms the extra stress "stirs up" the spirochaetes and an osteitis is set up. (In this connexion it is interesting to note that the author has demonstrated thirteen cases in which the left clavicle has been involved in left-handed people.) In support of his thesis Dr. Higouménakis quotes a number of other observers, including French, American, and Greek, who have also noted the sign and claim to have proved its syphilitic import. The ages of twenty patients who showed the clavicular sign varied from 15 to 56; no very young children are included. The Wassermann reaction was negative in eleven cases, positive in eight, and not stated in one. Fourteen of these patients seem to have been fairly typical cases of congenital syphilis and one was apparently a case of "third-generation syphilis," but the diagnosis of hereditary syphilis is not altogether convincing in the other five. The author claims that the value of the "sign of the clavicle" in the diagnosis of congenital syphilis is greater than that of other stigmata on account of its frequency and the ease with which it is demonstrated. It would be interesting to know in what percentage of cases of undoubted congenital syphilis this sign occurs, since its existence does not seem to have been recognized by many eminent syphilologists, and also whether it ever occurs in acquired syphilis or in other conditions. A more detailed description of the pathological and radiological findings would be invaluable, including an examination of sections for the *Sp. pallida*. In the meantime syphilologists would do well to keep a watchful eye for this sign and maintain an open mind with regard to its frequency and diagnostic significance.

OPHTHALMOLOGICAL SOCIETY OF AUSTRALIA (B.M.A.)

In this country we are accustomed to the formation and existence of independent clinical societies which are the meeting grounds of groups of local practitioners or of wider groups of practitioners who are engaged in some form of special medical work. Our Association was originally a combination of the former, and each Annual Meeting provides the latter to some degree in the Scientific Sections. Nevertheless, independent societies still exist because of our liking for old traditions. There are weaknesses inherent in the small independent societies, for they can rarely unite for common action. In Australia the members of the B.M.A. have evolved a more excellent way. The ophthalmologists of the Commonwealth felt they needed a society in which those practising this branch of medicine could unite for the advancement of their specialty, by meetings, publications, libraries and museums, research work and the provision of prizes for research work, and by postgraduate lectures. Instead of starting an independent body they have formed such a society within the Association—"The Ophthalmological Society of Australia (British Medical Association)." Those eligible for ordinary membership are all those members of the B.M.A. who specialize in ophthalmology and whose qualifications are approved by the Council of the Society. Its rules show that it is completely autonomous, yet it is part of the Association. The first president is Sir James Barrett (who was President of the Association in 1935), with Dr. James Flynn as vice-president, Dr. Darcy Williams honorary secretary, and Dr. Leonard Mitchell honorary treasurer. We congratulate our Australian colleagues upon their achievement and wish the new society every success. An article in the *Medical Journal of Australia* of April 9 ends thus: "We welcome an intramural society with the hope that its success may induce some of the existing extramural bodies to become part and parcel of the British Medical Association." That is a hope that might be fulfilled nearer home.

THROMBOCYTOPENIC PURPURA FROM SEDORMID

An enormous number of new synthetic drugs have been introduced during the present century and many of them have become firmly established in clinical use. In recent years there have been some notorious proofs of the fact that it takes a long time to discover all the potentialities of a new drug. The occasional appearance of toxic jaundice after cinchophen and of agranulocytosis after amidopyrin are cases which illustrate this point. Thrombocytopenic purpura has been known for some time to be caused by a variety of therapeutic agents—for example, *x* rays, radium, benzene, arsphenamine, and quinine. Five new cases of thrombocytic purpura induced by sedormid have been reported recently.[1 2] This effect is rather surprising because sedormid (allyl-isopropyl-acetyl carbamide) does not contain a benzene ring, and it is aromatic compounds which most often lead to undesirable changes in the blood. Hoffman and his colleagues[1] suggest that the carbamide radical may be the active toxic agent. Thrombocytopenic purpura after sedormid is evidently a very uncommon side-effect of this drug since only about a dozen cases have been reported in the literature. Its occurrence is, however, of interest as providing a new example of the curious idiosyncrasies that are being brought to light by the increasing use of a wide variety of synthetic drugs.

MEDICAL RESEARCH COUNCIL

By an Order of the Committee of Privy Council, made after consultation with the Medical Research Council and with the President of the Royal Society, C. R. Harington, Ph.D., F.R.S. (professor of pathological chemistry in the University of London), and W. W. C. Topley, M.D., F.R.C.P., F.R.S. (professor of bacteriology and immunology in the University of London), are appointed members of the Medical Research Council, in succession to Professor A. J. Clark, M.D., F.R.C.P., F.R.S., and Sir John Ledingham, D.Sc., F.R.C.P., F.R.S., who retire in rotation on September 30.

[1] *J. Amer. med. Ass.*, 1938, **110**, 725.
[2] Ibid., 726.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

FRACTURES IN THE REGION OF THE ELBOW-JOINT

BY

S. L. HIGGS, F.R.C.S.

Fractures involving the elbow are common, especially in children, and their treatment is often a matter of difficulty and anxiety. Although painful at the time, there may be no very obvious deformity or alarming incapacity, as in the case of a broken leg, and parents are apt to regard treatment as a simple matter and blame the doctor if the result does not come up to expectations.

Reduction may be difficult or impossible without surgical intervention. Restoration of movement may be slow or imperfect because of the peculiar liability of the elbow region to form excess of bone and undergo fibrosis around the joint. Deformity through interference with growth may be unavoidable. At least some of these dangers and difficulties should be pointed out to those concerned at the beginning rather than wait until they arise. Efficient treatment demands *x*-ray examination, repeated as often as necessary, probably a general anaesthetic, and adequate nursing and supervision, at any rate for a day or two. Where unhappy results occur it is usually found that in order to save trouble or expense some of these measures have been neglected. Failure to provide the best treatment must be made the responsibility of the patient or parents, as the case may be, and not of the doctor.

Supracondylar Fractures

A fall on to the extended arm in an adult is likely to cause a dislocation of the elbow, but in a child the weakest point is just above the lower epiphysis of the humerus, and this common type of injury will produce a supracondylar fracture. The most usual age is between 8 and 12 years. The condition is easily recognized. The arm hangs straight or is supported with the other hand. Palpation may help very little because of the swelling, but the slight backward displacement of the elbow combined with the unnatural side-to-side movement makes the diagnosis clear enough. Movements of the finger and the hand should be tested in order to detect possible nerve injury.

First aid consists in supporting the elbow in the position of deformity with a thick layer of wool and bandage, perhaps combined with a light splint. No attempt whatever should be made to bend up the elbow or to reduce the fracture until preparations have been made. Although the longer the fracture is left the more difficult reduction becomes, this applies to days and not to hours. There is therefore time enough to allow the child to get over the immediate effects of the accident, to obtain some *x*-ray films of both elbows for comparison, and to allow a reasonable period to elapse since the last meal before giving a full general anaesthetic. Gas is not enough, and local anaesthetics are unsuitable in the case of children.

REDUCTION

Reduction is accomplished in the following manner. An assistant steadies the upper arm while firm traction is applied to the pronated forearm with the elbow in extension. While still maintaining the pull on the forearm the elbow is flexed gradually, and at the same time forward pressure is applied to the olecranon and lower end of the humerus by the thumb of the operator's other hand. The sensation of reduction should be experienced. If it is not, the lower fragment has probably got caught behind the shaft, and further flexion must not be pressed. When reduction takes place the forward position is maintained by thumb pressure, while any side displacement is checked and corrected. The elbow is then brought up into full but not forced flexion, in which position the fracture is stable. The forearm should be pronated to relax the muscles, which otherwise tend to rotate the lower fragment.

How should this position be maintained with security and safety? A collar-and-cuff sling supports the wrist from below the neck, but may cause twisting of the fracture and subsequent loss of the "carrying angle." Strapping which encircles the flexed arm may cause danger from pressure, and must not be employed. A satisfactory method is to apply a wet plaster-of-Paris "slab," made from a four-inch bandage, direct to the back of the elbow from the top of the upper arm to the palm of the hand. At no point does it go more than half-way round the limb, and it cannot constrict. It is closely moulded to the skin, and so gives firm support. It is held in position by a few turns of bandage around the forearm and upper arm, but nothing whatever encircles the elbow itself. The bend of the elbow is therefore uncovered and free for inspection. When set the whole is supported in a sling. Without delay an *x*-ray examination should be made to check the position. If this is unsatisfactory the arm must be dropped again into semi-extension until a further attempt is made. The child should remain in bed for twenty-four hours at least, with the arm resting on a pillow, and a constant watch should be kept for any disturbance of the circulation. The signs of this are pain, congestion, and numbness of the fingers, and weakness or loss of voluntary movements. These are the danger signals of beginning ischaemia. The fracture itself becomes a matter of secondary importance. All pressure in the antecubital region must immediately be relieved by removing everything from the limb and reducing the flexion of the elbow. It should be remembered that it is not as a rule the swelling and flexed position alone which cause pressure, but flexion in the presence of an unreduced fracture. Hence the importance of obtaining *x*-ray evidence of reduction before resting content.

AFTER-TREATMENT

After-treatment consists in maintaining fixation until union of the fracture is firm. This usually takes four weeks. At the end of this time the plaster splint is removed and a collar-and-cuff sling substituted. In a few days, by gradually lengthening the sling, the elbow may be let down to a right angle, and then an ordinary sling can be substituted. Active movements are encouraged and a careful watch kept for any tendency for the range of flexion to become diminished. This may indicate the occurrence of myositis ossificans, which would demand a further period of rest. Radiographs will show this.

The last stage before full movement is restored may take many months. The parents must be made to understand that

massage, vigorous stretching, or manipulation of the joint would not only retard recovery but probably lead to still further stiffness. In certain cases some treatment from a reliable masseuse, who will help to restore the child's confidence but confine herself to heat and gentle active movements and exercises, may help the situation and prevent the parents from seeking unskilled advice.

Fractures of the Condyles

Injuries which cause either abduction or adduction strains of the elbow may lead to fractures of either the outer or the inner side of the lower end of the humerus. They occur most commonly in children because of the weakness associated with the multiple centres of ossification. For the accurate interpretation of radiographs a knowledge of these ossific centres and their appearance at different ages is necessary. Mistakes, however, may be avoided if exactly corresponding films are taken of the uninjured and the injured elbow. Careful comparison will disclose an abnormality, and the error of mistaking a separate bony centre for a fracture is avoided. It must be remembered that the lower end of the humerus in early childhood is largely cartilaginous, and that a torn-off epicondyle may be much larger than the *x*-ray appearance suggests.

INTERNAL CONDYLE

Forcible abduction of the elbow-joint at any age up to 16 may cause avulsion of this part of the bone through a pull exerted by the attached flexor group of forearm muscles. The importance of the injury lies in the close proximity of the ulnar nerve, which may be damaged at the time or become the seat of delayed neuritis in after-years. Exact diagnosis of the injury is not always easy without an *x*-ray examination, but if displacement has occurred a movable lump can be felt below and in front of the normal situation of the epicondyle, and there is lateral instability of the joint with a great deal of bruising. Nerve-pressure symptoms must be sought. Treatment depends upon the degree of the injury.

1. *Fractures without displacement* can be treated with a collar-and-cuff sling for a fortnight, and afterwards the resumption of active use.

2. *Fractures with downward displacement* are best treated by open operation. The steps of this consist of, first, a dissecting free of the ulnar nerve, which is often tightly stretched across the broken surfaces; then reposition of the condyle and attached muscles, fixing them in place by a few catgut stitches or a beef-bone peg; and, lastly, the transposition of the ulnar nerve to a muscle bed in front of the condyle, to make sure that it will escape a traumatic neuritis later on. The arm is fixed in flexion by means of a posterior plaster splint for three weeks, and then active movements are begun. If for any reason surgical treatment is impossible a fair result as regards function follows treatment by simply keeping the elbow flexed for three weeks. The condyle will not unite, however, and some lateral instability of the joint will persist, together with a variable degree of cubitus varus deformity. Furthermore, there is the risk of ulnar nerve irritation from friction behind the irregular condyle.

3. *Fracture with Displacement of Condyle into Joint.*—Although by manipulative methods it has been found possible to extricate the condyle, yet in almost all cases operative treatment is necessary. The ulnar nerve is often affected from the beginning, and this may demand exploration. The condyle is fixed back in position and the freed nerve transposed to the front.

EXTERNAL CONDYLE

Fractures of the external condyle usually involve a part of the articular portion of the humerus and are not confined to the epicondyle itself. In children particularly the large fragment may carry the whole of the capitellum and even part of the trochlear surface. For purposes of treatment there are two varieties: first, fractures without displacement, which should be dealt with on the lines of a supracondylar fracture; secondly, those with displacement. In the latter the broken-off portion is pulled out of the joint and drawn downwards by the muscles, and operative treatment is imperative. This may not prove a very easy matter, as the fragment is often rotated and at a distance from the joint. Some patience may be necessary to make out exactly how to fit it back without separating its muscle attachments. When in place it may be secured by a catgut stitch or by a small beef-bone peg. The elbow is held at a right angle, with the forearm supinated and the wrist a little dorsiflexed, by means of a posterior plaster slab and bandage. This is retained for three weeks before starting gentle active movements. No physical treatment is required.

Fractures of Head of Radius

A point to remember is that a supposedly "sprained" elbow may often contain a fractured radial head. It is usually produced by a fall on to the hand. There are none of the signs of gross fracture. Pain in the elbow on twisting the wrist is suggestive. Examination with the thumb over the radio-humeral joint while rotating the forearm with the other hand will reveal localized tenderness, limitation of movement, and often irregularity of the head of the bone. *X*-ray examination will show the type of fracture and determine the line of treatment.

1. *A crack with little or no displacement* should be treated by fixing the elbow in full flexion with the arm in supination. This position is most easily maintained by a very light posterior plaster splint supported by a collar-and-cuff sling. It should be retained for a month, after which a sling should be worn for a further week. Exercises and active movements are to be encouraged, but movements, especially extension, are slow to return.

2. *Fractures of a segment with displacement* do very badly with conservative treatment. Pain and stiffness persist, and traumatic arthritis develops later in the elbow-joint. The broken-off fragment should be removed by operation without delay. The radio-humeral joint is approached through a lateral incision which passes just behind and below the external epicondyle. The muscles are raised for a short distance from their origin and the capsule of the joint incised. The joint will be full of blood, and when this has been cleared away the damage can be inspected. The broken segment and any small fragments are removed as gently as possible, leaving the standing portion of the head if this is undamaged. Sometimes the articular cartilage of the adjoining capitellum is broken and rough. It should be made smooth with a knife and a sharp spoon. The capsule is closed and the muscles are replaced with a few interrupted catgut sutures and the skin with interrupted stitches. The exposure and work inside the joint are carried out with bleeding controlled by an Esmarch bandage, but in no circumstances should this be left on for more than half an hour.

3. *Comminuted fractures of the radial head* demand surgical treatment. The whole of the head should be removed, together with any loose fragments. After partial or complete excision of the radial head the arm is supported at a right angle by means of a thick layer of wool

and a firm bandage. Rotation movements of the forearm are encouraged from the start, and flexion and extension of the elbow after a fortnight.

Fractures of Olecranon

In these cases the question to be decided is whether or not to advise operation. The age and occupation of the patient, which arm is injured, and the degree of comminution or separation of the fracture must all be taken into consideration. The pull of the triceps and consequent separation cannot be efficiently overcome by any method of splinting, not even in full extension with strapping and pads. Bony union will not be secured, but nevertheless a remarkably useful arm may result from a fibrous union with separation of the fragments.

In elderly patients who are not required to do hard manual work the best course is to support the arm in a sling at a right angle and encourage active use from the beginning. In all other cases operative treatment is the method of choice. It should be carried out as soon as the skin condition is surgically satisfactory. Only a few points of technique need be mentioned. The patient lies prone, with the arm stretched out from the side and with the front of the elbow resting on a flat sandbag. An Esmarch bandage is used for the first part of the operation. The incision should be a curved one, passing to the inner side of the point of the elbow. The resulting scar is not in an exposed position and is hardly visible—an important point in women patients. Aluminium-bronze wire, made of many strands and flexible for tying, or two strands of strong fishing-gut, will serve to hold the fragments together. Silver wire is quite unsuitable. The wire should lie within the bone, only emerging at the sides of the lower fragment, to get a grip on the cortex, and deep in the triceps insertion where the knot is tied. A flexed post-operative position of the elbow is desirable, but the amount of flexion will depend on the security of the fragments. This can be tested before sewing up the wound. A posterior plaster slab outside the dressings aids fixation and comfort. In the average case active movements may be started in three weeks.

Nova et Vetera

BICENTENARY OF BOERHAAVE'S DEATH

Friday, September 23, 1938, will be the two hundredth anniversary of the death of Herman Boerhaave, the leading physician of his age. At Leyden, where he practised and died, the Nederlandsche Maatschappij tot bevordering der Geneeskunst, in association with other learned bodies in Holland, will commemorate the occasion. Dutch physicians and colleagues from other countries have been invited to pay homage to Boerhaave, and a commemorative volume is to be prepared, which, besides the addresses given on September 23, will include tributes from foreign physicians, botanists, and chemists. At the end of the ceremony a wreath will be laid before the statue of Boerhaave, and visits will be paid to the church where he is buried, to the old wards of the former St. Caelilia Hospital where he taught clinical medicine, and to his country seat "Poelgeest," near Leyden. The following day has been set apart for an excursion to the vicarage at Voorhout, where Boerhaave was born on December 31, 1668, and thence to Harderwyk, the ancient little town near the Zuyder Zee, where formerly stood a university in which Boerhaave graduated M.D. on July 15, 1693. The arrangements are in the hands of a committee headed by Dr. L. C. Kersbergen of Haarlem, whose office address is Keizersgracht 327, Amsterdam.

Before turning to the study of medicine Boerhaave took his degree in philosophy at Leyden in 1689; in 1701 he was appointed lecturer on the institutes of medicine at Leyden, and in 1709 professor of botany and medicine. In 1714 he was appointed rector of the university and professor of practical medicine, and four years later professor of chemistry. In 1728 he was elected into the French Academy of Sciences, and in 1730 the Royal Society of London made him a Fellow. "His genius so raised the fame of the University of Leyden, especially as a school of medicine, that it became the resort of strangers from every part of Europe."

BENJAMIN TARNOWSKY, 1838-1906

Professor Benjamin Tarnowsky, the first Russian syphilologist, was born on July 9, 1838, in Poltava. After medical education at Moscow, where he qualified in 1859, he went to Paris, where he studied syphilology and urology under Ricord. On his return to Russia he settled in St. Petersburg, where he became attached to the Kalinkine Female Lock Hospital. In 1863 he published his lectures on the diagnosis of syphilis in women and children, the first Russian manual on venereal diseases. In 1868 he was appointed to the Military Medical Academy of St. Petersburg, where he lectured to young soldiers on the dangers of exposure to venereal disease, and was made assistant professor of syphilology in the medical faculty, becoming full professor three years later. He also founded a school for the special education of midwives in syphilology. In 1885 he founded a society of dermatology and syphilology which was the first society of the kind not only in Russia but also in the world, and served as its president for many years. In addition to numerous original articles on various aspects of venereal disease, most of which he published in the *Archiv für Dermatologie und Syphilis*. Tarnowsky translated Lancereaux's monograph on syphilis. His work met with wide recognition both at home and abroad. The Russian Government conferred on him various distinctions, and he was elected honorary member of numerous Russian and foreign medical societies. Throughout his married life he received valuable help from his wife, Dr. Pauline Tarnowsky, who was one of the first medical women in Russia, and was well known for her work on psychiatry and craniology. His death took place on May 17, 1906.

HEINRICH MEIBOM, 1638-1700

From the stately days of the seventeenth century to recall into the hurried atmosphere of modern specialization the name of Meibomius, the tercentenary of whose birth occurred on June 29, engenders feelings of envy and melancholy regret. Though he has found a narrow memorial in the Meibomian glands of the eyelids which he described so accurately in 1666 ("De vasis palpebrarum novis, epistola") —these had previously been noticed by Giulio Casserio (1561-1616)—through the very act of eponymous commemoration, however pious, we tend to drift away from the man behind the name. Like so many of his contemporaries, he was indeed a child of Apollo, god of culture, poetry, rhetoric, and healing. While still a medical student (he became M.D. at Angers in 1663) he was appointed to, and in 1664 took up, the professorship of medicine in the University of Helmstädt. Fourteen years later he accepted the additional chairs of history and of poetry. He further showed his versatility by straying into the pleasant fields of archaeology, philology, and philosophy, and all his life he was an insatiate traveller. His father, Johann Heinrich Meibom, is a familiar figure in medical history, but his son, Brandanus, also a physician, is a comparative stranger.

A PERSONAL EXPERIENCE OF TETANUS

We print below an abridged account of a personal experience by TREVOR H. KNIGHTS, M.B., Ch.B.N.Z., of the Baptist Mission Hospital, Yakusu, Belgian Congo. It has been communicated to the *Journal* by Dr. C. C. Chesterman, O.B.E., medical officer and secretary, Baptist Missionary Society, 19, Furnival Street, London, E.C.

Source of the Infection

In November, 1937, a native patient operated on in the Yakusu Hospital for a large hydrocele suddenly developed trismus and died forty-eight hours after the onset of symptoms. There are no horses or cattle in the region, and tetanus has always been considered as exceedingly rare or non-existent. The source of the infection remained obscure, but thanks to the help of Professor Geoffrey Hadfield, M.D., F.R.C.P., of St. Bartholomew's Hospital, cultures have since been made of a large variety of materials from the hospital, and have resulted in a growth of *Cl. tetani* of slightly diminished virulence being obtained from the sweepings of the theatre floor. Whether these came from, or were the source of, the original native infection is unknown, but precautions have now been taken to prevent soiling of the theatre floor by the feet of those whose duty it is to enter it.

Two months later, January 19, 1938, Dr. Knights interrupted his morning list of operations between the clean and septic cases, and removed, with the help of his native dresser, a couple of irritable pigmented moles, one from his left arm, and the other from his right forearm. Novocain, 2 per cent., was used and the wounds were dressed and strapped with elastoplast; no catgut was used. Both wounds were subsequently irritable and neither healed by first intention.

Onset and a Canoe Trip

Dr. Knights writes:

On the twelfth day after the operation, January 31, 1938, away on a bush journey I had a headache and slight dysphagia. Next day the dysphagia had gone, but I had an irresistible desire to yawn, without the momentary relief from weariness which usually follows this exercise. My face felt "tied up," but I failed to detect risus sardonicus in the mirror and dismissed it as tetanophobia, and cycled fifteen miles to inspect a dispensary.

At 7 a.m. next morning I set out on a similar errand, but felt tired after the twenty-eight-mile non-stop ride. Lying down on the hard table of the rest-house I took a drink and suddenly my jaws went into spasm. Hurriedly altering notes I had written to various native chiefs and colleagues about my future plans I completed the inspection of the dispensary, had a short sleep on the table and changed my clothes, sodden with perspiration at the unsuccessful efforts to take a meal, and rode back twenty-eight miles through a tropical downpour to the river-bank.

While waiting for paddlers for the canoe I turned up "Tidy" and found I had probably four days to live. Returning later to find my messenger still propping up the doorway I remonstrated a little angrily when suddenly my laryngeal muscles went into spasm and the resulting shriek sent the native off at the double.

At last, with no doubts left in my mind, I began the long two-day canoe trip up to Yakusu, taking only a few drugs and papers, leaving my other kit as never wanting it again. I lay on a deck-chair covered with a camp-bed mattress in an open canoe, and as evening fell found that my back was stiffening so that at midnight I was very glad to be lifted out on to another rest-house table just as a storm was brewing. I passed the remainder of the night fitfully dozing amid the snores of paddlers, the thunder, and the noise of the rain on the leaf roof. In the blackness of early morning I was assisted down through the elephant grass to the beach, and we got off once more poling and paddling past the flickering lights of the fires in passing canoes. The shimmer over the water gave me a headache, but beyond an aspirin I took no drugs, as I wanted to keep my head clear, having several reports to make and money matters to arrange.

The entry in my personally made case-notes at this time was: "Stiffness of jaws still more marked; in moving spasm. Neck still remains free of stiffness which is noted across back. Eating an agony and brings on free perspiration. Spasm of left arm with hand in accoucheur's position. Spasm of body, legs, arms, and across chest."

At 2 p.m. we drew alongside the Mission motor-boat in which my colleague, Dr. Browne, had responded to an urgent forest call that morning, and to which he was due to return at dusk. A native engineer took matters in hand and insisted on putting me on board and taking me up to Yakusu; but though physically easier lying on the cane bunk I was tortured with the thought that I, with so little chance of survival, had possibly delayed somebody else with a lesser complaint.

Twenty-eight hours after setting out on this trip, which I felt was the last in my life, I was once more lying on a decent bed. The only serum we had, 6,000 units, was injected by the nurse as an intramuscular barrage and a cyclist sent off to Stanleyville for more. At 5 a.m. next morning Dr. Browne arrived in the motor-boat which had returned to fetch him. Later I had 65,000 units A.T.S. (non-concentrated variety) intramuscularly.

Horrors of Opisthotonos

That night I woke, after a few hours' sleep, with the feeling that something was about to happen. It was, and did! Suddenly a great hand seemed to take me across the chest, rendering respiration impossible. Another two such hands forced my head backwards towards my heels and my heels towards my neck, while my whole body poured perspiration. I felt some of the dorsal musculature give way with a tearing agony, and this made the pain worse at the slightest movement.

By the tenth day from the onset I was thoroughly worn out and began to have thoughts of turning in the struggle, even requesting two grains of morphine when my colleagues saw that I was in unbearable agony. By this time I was making vocal protestation, which relieved my feelings each time I felt the drumming pulse and tightening compression of my chest muscles.

Then came the greatest contraction of all, when I am told my pulse became imperceptible and my respiration ceased for two minutes. Then the miracle, for I dropped off to sleep and woke knowing I was going to live, and though stiff as a ramrod and very weak felt that no more convulsions were coming my way . . . and neither did they.

In conclusion I would like to pay heartfelt gratitude to my colleague, Dr. Browne, and to the nursing staff, whose skilful care and unremitting attention are without doubt responsible for my being able to tell this somewhat adventurous tale.

An Objective Postscript

Mr. Stanley Browne, F.R.C.S., M.R.C.P., adds the following note:

The eighth and ninth days of this illness showed a clinical picture of rapidly increasing seriousness, but the will to live was very strong, the patient voluntarily sucking up fluids through a rubber tube together with chloral and bromides.

On the ninth evening I gave him 70,000 units A.T.S. intravenously and 9,000 intramuscularly. Lumbar puncture was impossible as he begged me not to give him an anaesthetic. At this time morphine seemed to have no effect. The symptoms were complicated by bromide rash and a serum rash and catheterization was necessary.

Convalescence was complicated by an acute internal derangement of the right knee, probably caused by a fatty fringe, a condition from which he had suffered before when exhausted or emaciated. The heart was dilated and a systolic mitral murmur appeared. An impulse on coughing over the ruptured right quadratus lumborum disappeared and flat feet were prevented by massage and exercises.

ELECTRICAL IGNITION OF ANAESTHETICS

BY

H. W. SWANN

His Majesty's Senior Electrical Inspector of Factories

Two papers on electrical ignition of inflammable anaesthetics were recently read at the Institution of Electrical Engineers and, with the discussion which followed, showed that useful research work has been done towards reducing the risk. The purpose of this article is to summarize the more recent contributions to the subject and to suggest their application in practice.

Whilst explosions attended by serious results are fortunately rare the Ministry of Health in 1935 thought it desirable to issue a memorandum entitled "Precautions Against Anaesthetic Explosions in Operating Theatres."* This was of a preliminary character, and may be supplemented now that further information is available. The Ministry is aware of a number of accidents, information on which has been gathered from various sources. Although this figure may bear no relation to the actual number of cases, it indicates where the chief risk may lie.

TABLE I

Cause of Ignition (Electricity)	Non-Fatal	Fatal	Total
Static electricity	3	4	7
Surgical lamp in mouth	2	4	6
Cauteries	1	3	4
Surgical diathermy	2	1	3
Hot nozzle, dental syringe		1	1
Table lamp (switch)	1		1
X-ray apparatus	1		1
Totals	10	13	23

Table I summarizes the information available, and it will be seen that in recent years twenty-three cases of explosion are known to have occurred in this country and abroad which are attributed to electrical ignition in some form or other.

The Chief Risks

It will be noted that static electricity and the use of surgical lamps in the mouth constitute the chief risk, and although some degree of danger must inevitably attend the use of the general electrical equipment for lighting, sterilizing, ventilating, etc., attention has focused on the first two causations, especially as Coste and Chaplin† have found by experiment that the room distribution of ether vapour during operations under open-mask anaesthesia resulted in low concentrations. The air at about two inches from the patient's mouth contained less ether than would form an explosive mixture, and the proportion fell off rapidly as the distance from the patient increased.

Another bearing on the subject may be obtained from a statement by Dr. H. W. Featherstone‡ to the effect that from time to time he had heard of a minor "pop" when a small lighted electric bulb had been inserted into the mouth during ether–air anaesthesia. Dr. Featherstone described a case in which an explosion occurred in the patient's mouth and was attributed to defective contact between the lamp and the holder which caused a spark. He also discussed the possibilities of the leakage of ether into the gas stream even when the anaesthetist, in endeavouring to guard against risk, thought he had shut it off.

These and other opinions indicated that attention should be focused, in the first instance at least, on the electrical ignition risks in the immediate vicinity of the patient, and of these risks, those attending nose and throat operations appeared to be the most important. It must not be assumed, however, that risk in other positions can be dismissed as negligible, especially where ventilation is bad. Dr. C. F. Hadfield* particularly stresses the danger of foot switches in relation to accumulations of ether vapour at floor level.

Intrinsic Safety Surgical Lamps

There is a wide variation in the design, construction, and maintenance of the different forms of surgical lamps in use, and with the limitations necessarily imposed on size, and the need of sterilization, it becomes difficult to suggest forms of construction which could be considered gas-tight or immune from electrical defect. While there is little doubt that from the point of view of ignition risk design could be improved, it was thought that there was more hope in the direction of intrinsically safe circuits, which, if practicable, could be applied with less difficulty and delay. This principle has many successful industrial applications, but it was realized that there was no experience with mixtures possessing the inflammable characteristics of ether–oxygen. The problem has, however, been tackled by Professor W. M. Thornton†, whose researches are detailed in a paper read on February 24, 1938, at the Institution of Electrical Engineers. Thornton found that with hot wires, such as cauteries, ignition can occur within limits as wide as 3 to 80 per cent. of ether in oxygen. With sparks the limits are in general much narrower. The researches described determine these limits and also the least currents that cause ignition when broken slowly or suddenly or by fusing wires. Second only to hot wires as a possible risk are the fizzling sparks which may occur between fine wire ends, such as at an intermittent break in a fine wire flexible. Thornton found that when the current is kept below certain well-defined values ignition did not take place, and thus he was able to specify the resistance for any given voltage which would limit the current in that circuit to safe values. This resistance is, of course, located at the source of energy —for example, battery or transformer—and is independent of lamp or other circuit resistances. Its effect is to limit the energy, which appears as a spark caused by an open or short circuit anywhere in that circuit. Thornton advocated a factor of safety of 2 as being an ample margin: Table II takes account of this, and is amplified by a graph (Fig. 1).

TABLE II

Direct Current		Alternating Current	
Volts	Minimum Safe Limiting Resistance	Volts	Minimum Safe Limiting Resistance
0—2	0.25 ohms	0—2	1.25 ohms
2—4	1.25 „	2—4	6.00 „
4—6	3.25 „	4—6	14.00 „
6—8	7.00 „	6—8	25.00 „
8—12	27.00 „	8—13.5	54.00 „

The curves relate to fizzling sparks, which over most of the range of the experiments were the more dangerous. It is worthy of note, however, that the curve for plain break A.C. would cross the fizzling break at about 12.1 volts, which means that the plain break may become the more dangerous at voltages above this figure. Similarly, the curve for plain break D.C. would cross the fizzling break curve at 3 volts, and thus again plain break may be

* Memo. 191, Medical, Ministry of Health, 1935 ; S.O. No. 32–9999.

† J. H. Coste, F.I.C., F.Inst.P., formerly chemist-in-chief, London County Council, and C. A. Chaplin, Ph.D., B.Sc., A.I.C., of the chemical branch of the Public Health Department, London County Council.

‡ *Proceedings of the Royal Society of Medicine*, vol. 25, Part I.

* Discussion on Professor Thornton's and Dr. Rayner's papers, February 24, 1938; the Institution of Electrical Engineers.

† "The Electrical Ignition of Mixtures of Ether Vapour, Air, and Oxygen," by Professor W. M. Thornton, O.B.E., D.Sc., D.Eng., Past-President.

the more dangerous below that figure. Only the fizzling curves are shown, and the scale figures on the right-hand ordinate are those found experimentally by Thornton, while those on the left side allow a factor of safety of 2.

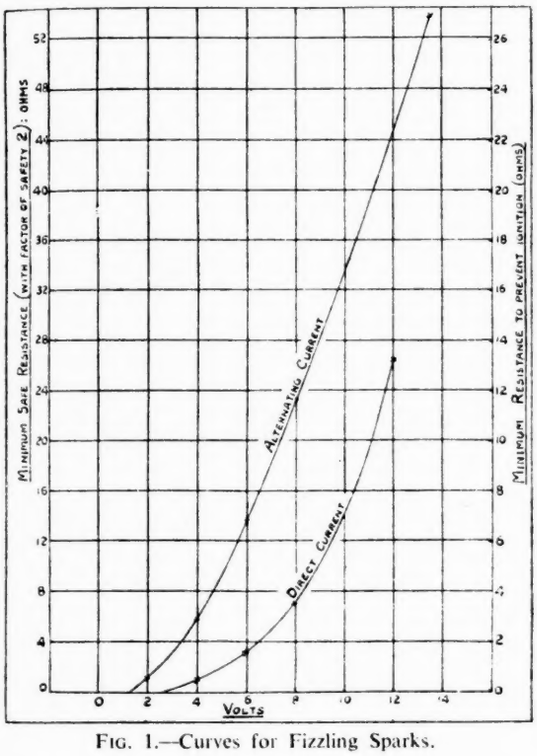
MINIMUM SAFE RESISTANCE (WITH FACTOR OF SAFETY 2): OHMS
MINIMUM RESISTANCE TO PREVENT IGNITION (OHMS)
ALTERNATING CURRENT
DIRECT CURRENT
VOLTS

FIG. 1.—Curves for Fizzling Sparks.

Hot-wire Ignition and Spark Ignition

Thornton distinguished between hot-wire ignition and spark ignition, and the importance of the point has been brought out by Dr. H. L. Saunders, Ph.D., F.I.C., who found that although circuits incorporating the prescribed value of resistance may be safe as regards most forms of sparks, a special case arises when a circuit is completed through a single strand of fine wire which may get hot. Under certain conditions the temperature of the ether mixture may thus be raised above its ignition point, causing explosion, or sufficiently to predispose to spark ignition should the fine wire break. Intermittent contact in a partly broken flexible conductor, involving a combination of hot-wire heating and sparking, is undoubtedly the most insidious form of danger, as a much smaller spark energy may be enough to cause an explosion. This is a particularly difficult case to define accurately, and may not be fully covered by Thornton's formulae. Very finely stranded flexible is thus likely to be more dangerous than coarse strands, as the heating will be greater in the last strand to break just before severance due to wear and tear.

Saunders has suggested that the only safeguard against this dangerous combination is to test the resistance of the circuit regularly. A partial break in a flexible will show up as an increase above the usual resistance and indicate the need for examination and repair. Lamp resistances vary, and it would be best to replace lamps by a low value of constant resistance for purposes of the test advocated.

The "Cool Flame"

Another aspect of the subject, with an important bearing on the risk of ignition, has been pointed out by Dr. D. T. A. Townend* in connexion with that peculiar type of combustion usually referred to as a "cool flame." In the case of ether–air mixtures in a 2.5-cm. tube there is a range of inflammable mixtures which at atmospheric pressure is capable of normal flame explosion between about 3 and 9 per cent. of ether in air, and a quite distinct range for the cool flame between about 19 and 34 per cent. of ether in air. Within the normal flame range the mixture can be ignited by sparks, but to initiate a cool flame it is necessary to use a hot wire—a distinction of great importance. Townend places the ignition temperature range of cool flame between *circa* 170° and 270° C., and describes cool-flame combustion as very incomplete, and invisible, except in darkness. The flames travel slowly, with a speed of something like 20 cm. per second in a tube 3.5 cm. in diameter; and at about atmospheric pressure, which is that approximately customary in anaesthesia, the ranges overlap, as the normal flame range starts at about 250° C.

Much the same type of system is formed with ether–oxygen-enriched mixtures as with ether–air mixtures, though with the former the ranges are naturally much wider. Townend showed that a cool flame initiated by hot wire could travel some distance in a tube, leaving behind it incompletely burnt products capable of normal flame explosion and ignitable from the preceding cool flame. Thus, where the velocity of the supply of anaesthetic is low, a cool flame initiated at the patient's mask during anaesthesia may travel back along the rubber tube to the gas-producing equipment, and may cause a normal explosion, either by ignition as above or on encountering a more explosive mixture.

Townend also discussed the possibility that although sparks of *normal* intensity, such as those from an induction coil or a broken wire, do not initiate cool flame, there may be a range of *weak* spark intensities capable of doing so, and the point has an obvious bearing on explosions caused by static sparks which may attract the attention of an interested investigator.

Overrunning Surgical Lamp Bulbs

Surgical lamps are often used in conjunction with some form of regulating resistance which allows of overrunning. The little bulbs are as a rule rated at between 2.5 to 3.5 volts and, when overrun to the point of burning out, the glass may reach temperatures capable of igniting ether mixtures. A valuable contribution to this subject has been made by Mr. C. T. A. Harper, who has measured bulb temperatures of typical lamps when overrun to an extent causing collapse and burning out of filaments. He employed a special fine thermocouple, which was kept in intimate contact with the bulb, thus avoiding the use of material which might act as lagging and so produce a higher temperature than would normally be obtained. Capped lamps did not reach such high temperatures as uncapped bulbs, possibly owing to the increased area of dissipation, and it is worthy of note that in no case did the collapse of the filament result in bursting or damage to the bulb.

Harper recorded his measurements on graphs, of which Table III is a summary. The graphs are reproduced as Figs. 2, 3, 4, and 5.

TABLE III

Description			Bulb Temperature		
				At Burn-out of Filament	
Type of Lamp	Number Tested	Rated Voltage	At Rated Voltage (Average)	Lowest Value Noted	Highest Value Noted
Surgical uncapped	4	2.5	120° C.	305° C.	380° C.
Pharyngoscope capped ..	5	3.5	60° C.	158° C.	230° C.
Urethroscope capped ..	4	3.5	80° C.	158° C.	250° C.
Ward's flexible capped ..	4	3.5	70° C.	218° C.	280° C.

In most cases the filaments appear to burn out at just under double the rated voltage.

* Discussion on Professor Thornton's paper, February 24, 1938; the Institution of Electrical Engineers.

The importance of this work is seen when it is remembered that the ignition temperature range for normal ether-flame explosions lies between 250° and 350° C. and for a cool flame between 170° and 270° C. It seems likely that some explosions in anaesthesia may have been due to overrunning, as it is believed that burning out of bulbs from this cause is not uncommon. The limiting resistance specified by Thornton for intrinsically safe circuits tends to diminish the risk of overrunning, but it will be obvious that it is in addition necessary that the rated voltage of the lamps should not be materially less than the voltage of the battery or transformer constituting the source of supply. An intrinsically safe 6-volt circuit would still allow a 2.5-volt lamp to be dangerously overrun.

CONCLUSIONS

The following conclusions may now be drawn as to the conditions under which surgical lamps may be used with comparative safety in the presence of inflammable ether–oxygen mixtures:

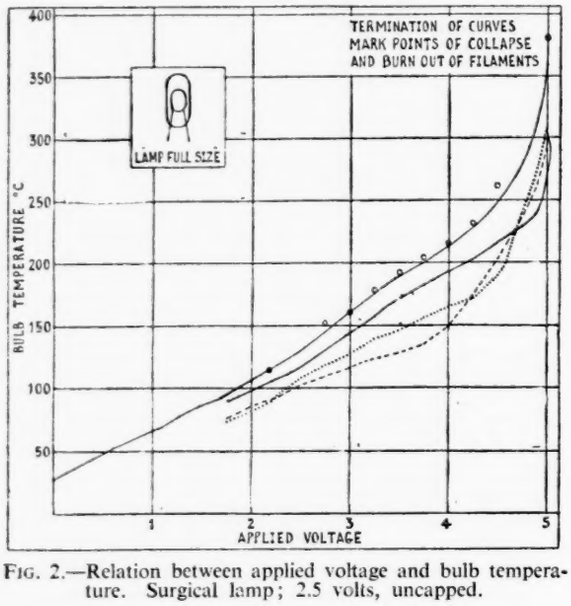

FIG. 2.—Relation between applied voltage and bulb temperature. Surgical lamp; 2.5 volts, uncapped.

FIG. 3.—Relation between applied voltage and bulb temperature. Pharyngoscope lamp; 3.5 volts, capped.

1. The adoption of Thornton's formulae for intrinsically safe circuits will prevent any form of spark ignition on either A.C. or D.C. circuits.

2. The danger of hot-spot or hot-wire ignition, or a combination of this with sparking at the moment when the last strand of a flexible breaks, may be minimized by a regular test of the circuit resistance and the keeping of records.

3. The supply voltage should not exceed the rated voltage of capped lamps by more than 25 per cent. Uncapped lamps should not be overrun.

Experiments made to demonstrate the utility of circuits conforming to conclusions 1 and 3 above showed that a useful degree of light was obtainable, especially on D.C. circuits. At the higher values of A.C. voltage the inductive effect has led to the necessity of high values of resistance, which diminish the light considerably. The utility of the battery-fed circuit is therefore the greater.

Static Electricity

Although the climate of this country can as a rule be depended upon to produce a degree of humidity which is incompatible with the retention of static charges, the modern practice of supplying large buildings with cleaned and conditioned air tends to neutralize the climate, and Dr. Rayner has presented a paper,* read on February 24, 1938, at the Institution of Electrical Engineers, which is devoted to a study of the manner in which static charges can be built up in operating theatres. Explosions attributed to static have occurred, and it has been found that rubber-tyred vehicles used for carrying patients can be electrified by withdrawing a warm dry blanket. Bulgin† says that an ordinary standard tyre of specific resistance 10^8 to 10^9 ohms will generate enough static to raise the potential of any vehicle to about 5,000 volts at a speed of ten miles an hour on a smooth road during warm weather. If sparks are produced in these or other ways they may jump not only to an earthed object or person but also to a rubber-tyred vehicle carrying an anaesthetic equipment. Thus the most likely place for static appears to be in the immediate vicinity of the patient, where the risk of ether concentration is greatest.

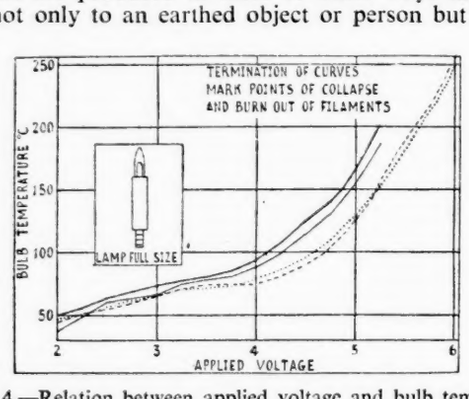

FIG. 4.—Relation between applied voltage and bulb temperature. Urethroscope lamp; 3.5 volts, capped.

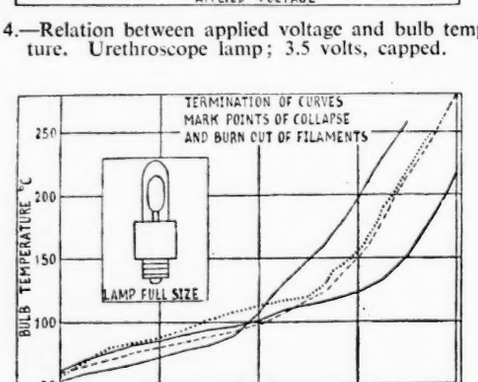

FIG. 5.—Relation between applied voltage and bulb temperature. Lamp for Ward's Flexible; 3.5 volts, capped.

The risk with rubber-tyred vehicles is easily overcome by the use of light trailing chains, but there is a good deal of misconception as to the conditions under which these are likely to be successful. Chains are usually effective on most floor surfaces, excepting rubber and linoleum, and quite high surface resistances, of the order of 100,000 ohms, are permissible. The point is easily settled in individual cases by producing electrification *without* a trailing

* "The Risk of Explosion due to Electrification in Operating Theatres of Hospitals," by Dr. E. H. Rayner, M.A., D.Sc. Dr. Rayner's work was done at the National Physical Laboratory for the Department of Scientific and Industrial Research, in consultation with the Anaesthetics Committee jointly appointed by the Medical Research Council and the Royal Society of Medicine.

† Discussion on Dr. Rayner's paper, February 24, 1938; Institution of Electrical Engineers.

chain, and then attempting to repeat it after the chain has been attached. In the absence of a suitable instrument a charge can be detected by holding a finger-tip about one-eighth of an inch away from the metal-work of the vehicle while a dry blanket is smartly pulled away.

A form of rubber possessing conductive properties has recently been developed with special reference to the risk of static in operating theatres, and has several similar industrial applications. It can be used in the shape of tyres, or in sheets for flooring, but low values of resistance are both unnecessary and apt to be dangerous. Rubber is inherently inflammable, and if the resistance is low there is risk of fire should electrical leakage occur through it, as, for instance, from a defective vacuum cleaner or a defective pedestal-type lighting standard. At 230 volts a specific resistance of the order of 100,000 to 150,000 ohms should be free of fire risk and yet quite effective for dispersal of static.

Electrical practice has always associated *non*-conducting properties with any form of rubber, and if accidents are to be avoided it is imperative that the new conductive variety should be plainly marked in a permanent manner. It is known that the India Rubber Manufacturers' Association has both resistance standardization and marking under consideration.

Dr. Rayner also gave attention to the possibility of static being produced at the anaesthetic equipment by discharge of gas from high-pressure storage cylinders. Some earlier work* on the electrification of oxygen cylinders has been done at Birmingham Central Technical College, from which it was concluded that in the absence of foreign matter in the gas stream there appears to be no electrification. The point is no doubt relevant also to cylinders containing carbon dioxide and nitrous oxide, and as a high degree of purity is ensured in manufacturing and bottling, the risk is small and may be minimized still further by maintaining electrical conductivity between all gas cylinders and other metal work comprising anaesthetic equipment supplemented by earthing, either direct or through conductive rubber. This measure will prevent sparking between components or to other bodies, but does not deal with the rare case of combustion at the oxygen valve. The design of the latter has, however, recently been improved by the elimination of ebonite for purposes of valve seating. The usual precautions of opening valves gently and keeping them free from oil or grease are, of course, desirable.

Gas cylinders may be located at a central point, away from the operating theatres, the gas supply being distributed by permanent pipe-line. This affords an opportunity for reducing the cylinder pressure in two stages, that in the pipe-line being maintained at, say, 60 lb. per square inch. This arrangement would reduce risk, and has already been adopted in America and in a few cases in this country, not only for the distribution of oxygen but also for nitrous oxide and other gases.

In cases of exceptional dryness the use of rubber shoes may insulate the person sufficiently to allow static charges being set up by friction with the floor and of being carried. Rayner found that a similar condition may arise with leather shoes on cork carpet. This would mean the possibility of sparking from the finger-tips, a phenomenon almost unknown in this country, but well recognized in very dry climates. An effective safeguard lies in the use of conductive rubber for the shoes.

CONCLUSIONS

The following conclusions may now be drawn as to the means of dispersing static charges:

1. Rubber-tyred vehicles should be earthed by trailing chains or conductive rubber.

2. Electrical conductivity should be maintained between gas cylinders and other metal components of anaesthetic equipment, and the equipment should be earthed direct or through conductive rubber. Gas cylinders may with advantage be situated at a central point outside the theatres.

3. In exceptional cases of dryness rubber shoes should be conductive.

X-Ray Apparatus and Electrical Equipment

The information recorded in Table I shows that although static and the use of surgical lamps constitute the chief risks, there are other matters which may probably be regarded as of secondary importance, such as the diagnostic use of *x*-ray apparatus during anaesthesia and the general electrical equipment of the theatre. Surgical diathermy or the use of cauteries in the presence of an inflammable anaesthetic would of course be a mistake, but modern forms of *x*-ray equipment probably introduce little risk except as regards defects, such as in flexible conductors, during use. The general electrical equipment—pendants, switches, plugs, sterilizers, etc.—is not as a rule in the immediate vicinity of the patient, but the degree of risk depends entirely on this factor and the fortunate lack of coincidence between an electrical defect and the presence of a mixture rich enough to ignite. With the exception of mercury-type switches there is little that can be suggested in connexion with the general equipment which would not involve revolutionary changes, and thus the greatest importance attaches to efficient ventilation.

Collaboration

The inquiries made in connexion with anaesthetic explosions, and the result of the work described in this paper, lead to the conclusion that some central representative body is required which could influence the design of electrical apparatus for the operating theatre, or perhaps for the hospital as a whole, and advise on its use. The employment of electro-medical apparatus is increasing as the applications of electricity become more numerous, and such a body might, without retarding progress, foresee risks and combine the views and requirements of surgeons and engineers to the best advantage.

* G. F. Partridge, B.Sc., M.I.E.E., in a report dated April 1, 1935, to the British Oxygen Co. Ltd.

STUDENTSHIPS AND FELLOWSHIPS IN CLINICAL SCIENCE AND EXPERIMENTAL PATHOLOGY

The Medical Research Council invite applications for a third series of studentships and fellowships intended to encourage young British medical graduates of special ability and original mind towards becoming investigators in those branches of medical science which are concerned directly with disease as it occurs in human beings. This field of research includes investigations into disease or manifestations of disease in patients, together with experimental work of an immediately relevant kind.

Postgraduate Studentships.—Postgraduate studentships are offered for medical graduates who have already held house appointments and are strongly inclined to a career in clinical science or experimental pathology. Each student chosen will receive a stipend at the rate of £200 per annum, during a period not exceeding twelve months, for personal maintenance while undertaking approved courses of study in this country such as may be regarded as best calculated to advance his training in methods of research. This study may include modern languages and such advanced physiological, pathological, and special clinical work under recognized teachers as may be regarded as forming a suitable preliminary to serious research work to be undertaken later; but the approved course may not include studies of which the purpose is to enable the student to pass further examinations.

Research Fellowships.—The Council also offers research fellowships for candidates of similar qualifications who have already had some experience in the use of research methods. Each fellowship will be tenable for one year at the ordinary value of £250 per annum, and will be renewable in approved instances at the rate of £300 per annum for a second year. These fellowships are intended as probationary appointments for research in clinical science or experimental pathology under suitable direction in this country. Research expenses may be provided in addition to stipend. Applications should be lodged with the Secretary, Medical Research Council, 38, Old Queen Street, London, S.W.1, before October 1, 1938. Forms for the purpose will be supplied on request.

ONE HUNDRED AND SIXTH ANNUAL MEETING

of the

British Medical Association

HELD IN PLYMOUTH, JULY, 1938

THE SECTIONS

SUMMARY OF PROCEEDINGS

During the next few months there will be published in the BRITISH MEDICAL JOURNAL *the opening papers communicated to the Scientific Sections of the Annual Meeting at Plymouth. The reports of discussions in this and successive issues are intended to give members who were not present a general idea of the proceedings.*

SECTION OF MEDICINE

Wednesday, July 20

Toxic Infective Jaundice

With the President of the Section, Dr. T. H. G. SHORE (Plymouth), in the chair, Dr. C. E. LAKIN opened a discussion on toxic and infective jaundice.

Dr. C. E. Lakin said he accepted the conventional classification into obstructive, haemolytic, and that form of the disease caused by liver damage. He was concerned only with this last toxic or hepatogenous jaundice. Exogenous poisons, bacterial toxins, virus infection, and autogenous intoxication were the principal causes of this disease, in which the patient was likely to be more ill than jaundiced. Generally the stools remained normal in colour, but the urine might contain bile in addition to urobilin and albumin. The liver parenchyma underwent pathological changes, ranging from the severe necrosis due to massive doses of toxin to gradual replacement fibrosis when the poison was less virulent. According to present-day conceptions acute yellow atrophy at one end of the scale and cirrhosis of the liver at the other fell into line. Until recent years ordinary catarrhal jaundice had been regarded as a form of obstructive jaundice. While there was pathological proof of this, a disease clinically indistinguishable occurred in epidemic form. In a recent outbreak among nurses at the London Fever Hospital the incubation period appeared to be twenty-one days. The infecting organism had so far not been discovered, but in one epidemic nasopharyngeal "droplet" infection seemed to be the method of spread. Hurst had taken the view that there were two varieties of catarrhal jaundice, but Dr. Lakin was doubtful of their existence. He had seen cases of epidemic catarrhal jaundice ushered in with fever several days before the jaundice appeared, while vomiting and abdominal discomfort had shown themselves in the pre-icteric period. He found it difficult to differentiate these symptoms from those of the acute gastritis which were emphasized as preceding the obstructive form of catarrhal jaundice. Perhaps a deeper jaundice and paler stools suggested a blocked duct, while enlargement of the spleen was more constant in mild subacute hepatitis. The Van den Bergh and laevulose-tolerance tests could not be relied upon to differentiate these diseases. The work of Bloomfield in America had suggested that catarrhal jaundice might be followed by permanent or even progressive hepatic damage. Dr. Lakin had seen cases which supported this view, and he wondered whether changes of this type in the liver might explain the varying effect that alcohol had on different people.

Professor G. R. CAMERON referred to the toxic substances which might damage the liver. The pathological changes could be divided into four groups according to their severity. In the most acute forms yellow atrophy produced rapid shrinkage of the liver and death; next came subacute atrophy, which was followed by a regenerative process; thirdly, less severe poisoning resulting in multiple nodular hyperplasia (toxic cirrhosis), with its brunt often on the right lobe; and, fourthly, a slow pathological change, which might after some years be followed by primary carcinoma. In two-thirds of all cases the kidneys were affected, and in a smaller proportion the heart. The action of hepatotoxic substances was influenced by the amount of the poison, the spacing of the doses, personal idiosyncrasy, diet, and the presence of associated infection. The young were more susceptible than the old, while pregnancy and alcoholism might aggravate the effect of any poison.

Major H. C. BROWN discussed Weil's disease, its occurrence in the British Isles, and its differential diagnosis. In collaboration with Alston he had recorded 142 cases in Great Britain in four years from July, 1933. The causal organism was known to be carried in the kidneys of 41 per cent. of brown rats. Human infection took place through the abraded skin coming into contact with material contaminated with the urine of infected rats. The disease could also be acquired from bathing in infected water. Almost every case in the British Isles had been traced directly or indirectly to the agency of rats—for example, a dog-bite might convey the disease if the dog had recently killed an infected rat. Men were affected far more frequently than women, except in fish-working and tripe-dressing, occupations in which many women were employed. Differential diagnosis from epidemic catarrhal jaundice might be very difficult; prostration, ocular congestion, albuminuria, and haematuria were found in both diseases, but the intense muscular pain in Weil's disease was an important factor in diagnosis. The differential blood count was of value; a polymorphonuclear count of 85 per cent. or 90 per cent. being usual in Weil's disease, whereas in epidemic catarrhal jaundice there was a considerable relative increase in the mononuclear cells. Stokes and Ryle in Flanders had shown that many patients with Weil's disease were not jaundiced. Obscure influenzal attacks among the labouring classes were to be looked upon with suspicion when association with rats could be traced.

Dr. G. W. M. FINDLAY considered that the common form of infective hepatic jaundice was epidemic catarrhal jaundice, although obstructive cases certainly occurred. Many workers in other countries had produced overwhelming evidence that the condition was a hepatitis. He advocated replacing the term "epidemic catarrhal jaundice" by "epidemic hepatitis." The aetiology was unknown, although a virus might be responsible: the long incubation period of four to five weeks supported this. All efforts to infect experimental animals had failed. During recent work on immunization against yellow fever it became obvious that the initial slight reaction might be followed by jaundice several weeks or months afterwards. This occurred in ninety-three out of 3,100 patients inoculated. The urine became dark and the skin yellow; a prodromal period with fever might occur, the Van den Bergh reaction being diphasic. It became clear that some virus was being cultivated in association with the strain of yellow fever virus in use; subsequently methods had been found to abolish the risk of jaundice after these inoculations.

Dr. E. R. CULLINAN described a syndrome in which attacks of jaundice, without apparent cause, were associated with subacute necrosis of the liver. In its early stages it might be confused with recurrent catarrhal jaundice, cholangitis, pancreatitis, Hanot's cirrhosis or biliary cirrhosis. Later it might be difficult to differentiate the condition from splenic anaemia, Banti's disease, or portal cirrhosis. The onset resembled that of catarrhal jaundice; there was no fever or severe pain. The jaundice often fluctuated. The liver was enlarged but not the gall-bladder. The illness might be prolonged, and jaundice might last any period from two weeks to ten years. Deepening jaundice with increasing anaemia, fever, and quick pulse heralded a fatal issue. The Van den Bergh reaction

gave no help in the diagnosis, but the laevulose-tolerance test was important in distinguishing this disease from malignant obstructive jaundice. Correct diagnosis as between these two conditions was essential, as laparotomy in these cases was frequently fatal. Treatment should include the administration of large amounts of glucose; calcium and alkali were also of value.

Sir ARTHUR HURST was convinced that there were two types of catarrhal jaundice. In that associated with hepatitis the patient was more ill and had fewer preliminary symptoms; the prognosis was good on the whole. The laevulose-tolerance test showed impaired liver function in this group, while in obstructive catarrhal jaundice it gave a normal result. He agreed that operation was extremely dangerous in toxic jaundice. Cholecystography had sometimes been misleading, as the absence of a gall-bladder shadow might lead to the inference of gall-bladder disease, whereas the liver was actually at fault in being unable to excrete. Atophan, which was widely used in cases of arthritis, was in his opinion a cause of toxic jaundice.

Dr. DONALD HUNTER made the broad clinical distinction between catarrhal jaundice and Weil's disease that in the former the patient was not ill, whereas the latter was characterized by severe illness and haemorrhages. The statement that Weil's disease occurred only in the poor might be misleading, and he quoted the case of a well-to-do patient who died of this disease, which he contracted while bathing in a contaminated stream. He agreed with Sir Arthur Hurst that atophan was very dangerous, and he never used it; there were safe and effective drugs available for the treatment of gout. Dr. G. S. ASTON (Barnstaple) described his recent experience of epidemic catarrhal jaundice in three separate households. His observations supported those of Dr. Lakin in indicating a twenty-one-day incubation period. Pain was not severe except in one case, and several patients had prodromal symptoms. Dr. H. F. BELL WALKER (Balfour, South Africa) described a form of epidemic jaundice which occurred in South Africa. Fluctuation in the incidence of epidemic jaundice corresponded with plagues of rodents. Rat bites were unusual, but rat-flea bites were common. Many of the patients were children, and there was no case-to-case infection. There was evidence that the infection resulted in permanent damage to the liver.

SECTION OF SURGERY

Wednesday, July 20

Acute Appendicitis

With Mr. V. ZACHARY COPE, President of the Section, in the chair, Professor G. GREY TURNER, opening a discussion on the treatment of acute appendicitis, stated that according to the Registrar-General's statistics there were 3,000 deaths from appendicitis annually in Great Britain. This was equal to 12 per cent. of deaths from diseases of the digestive system, and 0.61 per cent. of deaths from all causes. He had taken the combined figures of two large general hospitals—the London Hospital and the Royal Infirmary, Newcastle—for the five years 1933–7, to determine the present position of operative mortality. Of acute cases, excluding localized abscess, there were 6,725 with 247 deaths, a mortality of 3.67 per cent. In 604 cases with localized abscess there were fifty-one deaths —8.44 per cent. mortality. These two acute groups combined gave a mortality rate of 4.07 per cent. In the total series of 9,933 cases, acute, subacute, and interval, there were 308 deaths—a mortality rate of 3.10 per cent. Appendicitis, he said, was at its inception a local disease, and the essence of success was both early diagnosis and early operation. Once infection was well established in the peritoneum or in the veins a secondary nidus was established which might go on in spite of removal of the original focus. As to early diagnosis, he did not think that Murphy's dicta regarding symptoms had been improved upon. These were abdominal pain of abrupt onset, nausea or vomiting, abdominal sensitiveness settling in the region of the appendix, and rise in temperature. Any variations in the order of these symptoms caused Murphy to question the diagnosis. The omissions from Murphy's list were, he thought, significant. Indiscriminate diagnosis was the great fault. Too commonly such a thing as abdominal influenza was diagnosed. Rutherford Morison had put forward a statement that if pain in the abdomen required morphine the case was a surgical one, and must be thought of in terms of operation. The time for operation, apart from very few exceptions, was as soon as the diagnosis was made. With regard to cases apparently subsiding it was not good practice to delay unless all the symptoms were subsiding spontaneously. He believed in doing an operation which was essentially local, and this was best performed through Rutherford Morison's muscle-cutting incision parallel to Poupart's ligament. Professor Grey Turner concluded by quoting Murphy's dictum that early operation was the only safe practice.

Mr. R. J. MCNEILL LOVE confined his contribution to the discussion to cases which presented themselves with an "appendix mass." For these he advocated delayed treatment because of the difficulty of operation and of the breaking down of adhesions which were limiting infection. The procedure was the adoption of the Fowler position, the application of fomentations, and the maintenance of a constant watch on the pulse, temperature, and changes in the character of the mass. Whereas previously a limited amount of fluid used to be given by the mouth, this had been discontinued because of the relaxation of the ileo-caecal valve so caused, with consequent local peristalsis. Instead, the patient had saline and glucose administered to him by continuous intravenous infusion. Expectant treatment was not suitable for children or the aged—in the former because of the difficulty of obtaining a satisfactory history, and because frequently the mother had administered a purgative; in the latter because of the common rapid development of gangrene. The results of expectant treatment were that in 65 per cent. resolution occurred and a clean operation could be performed three months later; in about 25 per cent. of cases an abscess formed, which might require drainage but might be absorbed; in about 10 per cent. of cases operation became imperative because of increased severity of the symptoms. He denied that complications were more frequent with delayed treatment, and thought that, whereas the probable mortality in these cases was about 6 per cent. if immediate operation was performed, it was only 3 per cent. if expectant treatment was employed. He agreed, however, that experienced surgeons had produced as low figures as the latter by immediate operation, but maintained that most cases were operated upon by the less experienced.

Mr. H. C. W. NUTTALL (Liverpool) said that much of the difficulty in such a discussion was the lack of uniformity in classification, so that similar series could be compared. He suggested a classification first into the unperforated, the perforated, and the complicated. The unperforated he further subdivided into the non-obstructed and the obstructed. The perforated group might develop into localized peritonitis, diffuse peritonitis, or localized abscess. In the complicated group he included only immediate complications due to direct spread of the infective process to neighbouring structures, the most important being pylephlebitis, ileus, residual or subphrenic abscess, and cellulitis of the abdominal wall. He did not advocate delayed treatment, although he thought that in exceptional circumstances and in inexperienced hands it had its place. The amateur surgeon was out of place in either the immediate or the delayed treatment of acute appendicitis.

Mr. H. H. RAYNER (Manchester) said that despite the national mortality rates he thought there had been a striking improvement in results due to the realization of the value of early operation, the use of the continuous intravenous drip of saline and glucose, and the aspiration of the stomach contents, when necessary, through an indwelling catheter. He emphasized the care necessary to remove an appendix on the point of rupture. In cases with local peritonitis he was in favour of immediate operation except in the very fat, the alcoholic, and the patient with chronic bronchitis and

emphysema. In these the risk of operation was greater than the risk of waiting for spontaneous subsidence. Where there was a local lump which appeared to be more in the nature of inflammatory infiltration rather than an abscess he favoured delay, provided the patient was placed under proper hospital conditions.

Mr. W. SAMPSON HANDLEY thought that practically all cases of acute appendicitis were of the obstructive type, and that for twelve to forty-eight hours the inflammation was limited to the appendix. Removal during this period left an "aseptic patient." In cases in which the appendix had ruptured a trickle of pus often escaped into the pelvis, and to meet this danger in late cases he advocated an initial small suprapubic incision to pass down a diagnostic swab.

Mr. H. H. BROWN (Worthing) referred to the occurrence of septicaemia in some cases operated upon after the first forty-eight hours. There was, he considered, a negative phase about the third to the fifth day in which operation might induce a septicaemia. In these cases no sign of local infection was found post mortem.

Mr. VICTOR HURLEY (Melbourne) said that it was a disappointing fact that in Australia as well as in England and the U.S.A. the mortality from acute appendicitis was still rising. The practice in Melbourne was immediate operation except in occasional bad risks, and he agreed with Mr. Rayner on the subject of obese patients. He thought the most dangerous cases were those of pelvic appendicitis, both from the diagnostic and operative points of view.

Mr. HERBERT CAIGER (Sheffield) endorsed a previous speaker's plea for not attempting removal of the appendix where such removal appeared difficult.

Mr. W. MCADAM ECCLES described how in three generations, of which he was the senior, prompt and immediate operation had been employed with success.

Mr. H. C. RUTHERFORD DARLING (Sydney, New South Wales) doubted if the obstructive type of appendicitis was so common as supposed. He also thought it often impossible to determine the position and state of the appendix from clinical examination. With regard to expectant treatment he thought that resolution did not necessarily occur in cases which subsided. He had twice performed late operations for cases so treated, only to find dense adhesions and the stump of an appendix.

Mr. HAROLD DODD analysed five deaths in the past five years. Two patients died from bronchopneumonia. Both had had a common cold recently. One had died from pylephlebitis. Two had died from ileus, and he deprecated any active treatment in this complication.

Professor GREY TURNER, in reply, said he did not object to expectant treatment in experienced and competent hands. But there was a great danger, if the practice was widely preached and advocated, of an increased mortality. The trouble was that the inexperienced frequently stretched the possibilities of a method far beyond what had originally been advocated.

Mr. A. M. BOYD read a short paper on arteriography.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Wednesday, July 20

Occipito-posterior Positions of the Vertex

Professor J. CHASSAR MOIR (Oxford), opening a discussion on occipito-posterior positions of the vertex and their complications, said that most posteriorly placed occiputs rotated to the front during labour, and a spontaneous delivery was the rule rather than the exception. About one-third of cases of failed forceps were associated with undiagnosed occipito-posterior cases. The real cause of the difficulty in delivery was, he believed, a simple one, and was essentially a maladjustment of the shape of the foetus to the shape of the birth canal. "Face to pubes" was a common method of spontaneous delivery, and occurred when the mother's pelvis was large and the foetus small. But this was not an argument in favour of delivering occipito-posterior cases in the face-to-pubes position; it was much easier to rotate the occiput to the front. Recent radiological investigations by Thoms and Caldwell, Moloy, and D'Esopo had thrown new light on the mechanics of labour. They had suggested that in some cases an occipito-posterior case might be more easily delivered as a face-to-pubes case. The actual causes of a persistent occipito-posterior position were a large pelvis, a small foetus, and a deficient perineum. Increased pelvic inclination and an extended foetal head favoured a posterior lie, while minor degrees of pelvic contraction and abnormalities of uterine action were also complicating factors. The foetal mortality in non-rotated cases was high. Forceps were apt to slip and damage the child's brain, and a gross damage to the pelvic floor was easily sustained. The foetal mortality in neglected cases might be as high as 25 per cent. In the diagnosis of occipito-posterior position the presence of short ineffectual and severe pains with no advance should be regarded with suspicion.

Professor J. M. MUNRO KERR (Canterbury) said the commonest diameter in which the foetus engaged was the transverse diameter of the pelvis—that is, the occiput lay L.O.T. or R.O.T. If the occiput was directed further posteriorly then a primary posterior position resulted; more commonly the occiput did not rotate backwards until the onset of labour, giving rise to a secondary posterior position. Oxley had shown that in 90 per cent. of such cases spontaneous rotation and delivery would occur. Of these about 10 per cent. were delivered face to pubes. The foetal mortality was about 1.2 per cent. In large maternity hospitals there was a high percentage of spontaneous deliveries with a low foetal mortality in cases from the district, but in in-patient departments where early interference was undertaken the foetal mortality rose sharply.

Professor FARQUHAR MURRAY (Newcastle) advised the correction of occipito-posterior positions of the vertex during the later weeks of pregnancy by means of a pad and binder. He always delivered such cases in the "cross-bed" position, as it made the recognition of the obliquity of the head in relation to the outlet much easier. Foetal distress with a still incompletely dilated cervix required very careful extraction past the cervix and a rapid delivery after an episiotomy at the outlet, owing to the possibility of the cord being round the neck. Mr. BRYAN WILLIAMS (Liverpool) considered that many of the so-called persistent occipito-posterior positions were in reality cases of "transverse arrest of the head." He considered that this complication was imperfectly recognized and taught in this country, and that it presented far more difficulties than the occipito-posterior position. Out of 3,004 deliveries in the Walton Hospital the previous year there were fifty-three cases of persistent occipito-posterior position. Spontaneous delivery occurred in forty-one of these, and intervention was required in twelve, with no foetal or maternal mortality. There were forty-eight cases in which intervention was necessary for a transversely arrested head, the maternal morbidity rate being 27 per cent. and the foetal mortality 27 per cent. In deep transverse arrest manual rotation was difficult or impossible, and the application of forceps to the unrotated head led to a high foetal mortality. Kjellard's forceps, in the hands of the expert, were of great help in such cases. The use of intrapartum radiology should be widely extended.

Mr. L. CARNAC RIVETT emphasized the necessity for early diagnosis in non-rotation of the head. Frequent vaginal examinations should be made, and the head rotated as soon as possible. Professor J. PRESTON MAXWELL (Pekin) stated that most cases could be rotated and easily delivered. He also stressed the importance of measuring the outlet in all cases. Mr. JAMES W. G. H. RIDDELL (Plymouth) recalled the important fact that pains in occipito-posterior positions were severe early in labour. It was no use encouraging the patient to bear down too early. Internal version, described by Smellie, was occasionally necessary. Professor F. J. BROWNE recounted the original description of rotation by Smellie. He emphasized the need for deep anaesthesia, thorough "ironing" out of the vagina with plenty of lubricant, and the insertion of the whole hand in the vagina.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE

Wednesday, July 20

Angiography

With the President, Mr. GEOFFREY JEFFERSON, in the chair, Professor HERBERT OLIVECRONA (Stockholm), in a paper on angiography, said that the risks of this procedure must be considered in determining the indications for it. He would not examine the possibility of a delayed radio-active effect of retained thorium dioxide: the amount injected was probably too small for this, and speculation in the absence of clinical or pathological material was idle. There were two other undesirable effects of angiography. One was the development of thrombopenia, pointed out some time ago by Löhr, which might be complicated by oedema of the glottis. This was of minor importance, because with proper care there need be no such sequel. If the thrombopenia was marked a blood transfusion should be given. A more serious effect was the plugging of small vessels by thorotrast, demonstrated by Nordmann (1936) and by Northfield and Russell (1937). Their observations had been amply confirmed by Ekström and Lindgren in the speaker's clinic. This injury had been the main cause of death in two or three cases, and possibly a contributory factor in some of the others. In the light of this knowledge it was necessary to revise our attitude towards arteriography, and Professor Olivecrona agreed that it should be used only where information necessary for treatment could not be obtained by other means. It should be limited to cases where specific information on the condition of the cerebral blood vessels was required, such as aneurysms. In dealing with arterio-venous aneurysms it might be preferable to perform an exploratory craniotomy if the evidence in favour of aneurysm was equivocal. Other indications for arteriography lay in the diagnosis of glioblastoma, and in those rare cases where localization was impossible and ventriculography had been unsuccessful. He stressed the importance of limiting the amount of thorotrast by every precaution. Only where strictly necessary should there be exposure in more than one plane and bilateral injections.

Mr. NORMAN DOTT (Edinburgh) considered that arteriography was of special service in studying lesions of the blood vessels, especially congenital aneurysms of the larger cerebral arteries. Such aneurysms might act as tumours by compressing adjacent structures, or might make their presence felt by leakage or frank rupture. It was in the latter that angiography was of special value, for there was usually no other means of precise localization. From his experience Mr. Dott advocated "expectant" measures consisting of rest and the maintenance of a low blood pressure in patients over 50 years. In younger patients angiography followed by ligation of the internal carotid artery, or local treatment of the aneurysm according to its site, was preferred. In such cases angiography would show the degree of patency of the aneurysmal sac, its exact site and relation to the arterial tree, and the state of the local cerebral circulation. Mr. Dott emphasized the importance of the last point, since ligation of the carotid artery in the presence of an impaired circulation might lead to an extensive softening, and was therefore contra-indicated. Proceeding on these lines he had performed fourteen carotid ligations since 1933, with only one fatality that could be attributed to the operation.

Mr. D. W. C. NORTHFIELD endorsed Professor Olivecrona's plea for caution in the use of thorotrast, and described certain clinical and histological sequels when thorotrast caused blockage of the small vessels about a compressing lesion of the brain. Because of these sequels he now restricted the use of thorotrast to cases where the regional and pathological diagnosis could not otherwise be established, and to clinch the diagnosis of spongioblastoma multiforme. He considered, with Mr. Dott, that angiography was most clearly indicated in cases of cerebral aneurysm and vascular malformations. Dr. HARDMAN (Manchester), in a series of lantern slides, demonstrated peculiarities in the angio-architecture of certain tumours of the brain. The vessels were visualized in post-mortem specimens either by injection of barium gelatin or by Pickworth's benzidine method. By these techniques a characteristic vascular architecture had been demonstrated in three types of tumour: spongioblastoma multiforme, astrocytoma, and meningioma. The existence of numerous large venous sinusoids was a striking feature of spongioblastoma multiforme, but no arterio-venous anastomoses could be demonstrated.

Mr. JEFFERSON agreed that in border-line cases of arterio-venous aneurysm it might be advisable to perform a craniotomy first for diagnostic purposes, and to define the extent of the lesion later by arteriography.

Spasmodic Torticollis

In a paper on spasmodic torticollis Professor OLIVECRONA pointed out that in most cases the aetiology was obscure. Opportunities for examination at necropsy were rare. The association of the condition with epidemic encephalitis and Parkinsonism had, among other observations, supported the view that the essential lesion was extrapyramidal in situation. Although spontaneous remissions, sometimes lasting for years, might occur, the disability was often so great that patients insisted upon some form of treatment. Medical treatment, both with atropine and by the cultivation of an "antagonistic gesture," was sometimes effective in the milder types. If such measures failed surgical intervention should be attempted. Since operations aimed at the paralysis of those muscles which contracted during the spasm, it was necessary accurately to assess the muscles involved and to plan accordingly. Out of thirty-three cases four showed slight symptoms and were treated medically. In five the spinal accessory nerve was divided, with complete or nearly complete relief. In another the three upper cervical sensory roots were divided on one side, with nearly complete relief. In the remaining twenty-three cases division of the upper cervical motor roots was combined with peripheral division of one or occasionally of both spinal accessory nerves. In two-thirds of this group the patients were completely or almost completely relieved of spasm and were able to work; they showed fair compensation towards the effects of the operation, and the early instability of the head gradually disappeared; some stiffness of the neck persisted. In the remaining third the results were unsatisfactory, either because the general condition of the patient was poor or because there were other ailments. In some the spasm had extended into adjacent muscle groups or a major extrapyramidal syndrome had developed. These patients were therefore incapacitated from some cause outside the scope of the operation.

Dr. MACDONALD CRITCHLEY divided cases of spasmodic torticollis into four types: (1) purely psychogenic: a variety of tic; (2) following epidemic encephalitis: in this the torticollis might be transitory; (3) forming part of a more widespread extrapyramidal motility disorder such as chronic progressive chorea, bilateral athetosis, etc.; and (4) a slowly progressive tonic-clonic spasm not confined to the neck muscles. The last group was the commonest, and he regarded such cases as intractable. Investigation often showed an occupational background and possibly a psychogenic basis. He was sceptical about the surgical treatment of the condition largely because it appeared unscientific. A more rational approach might lie in the operative ablation of cerebral cortex on the lines of the newer technique for the relief of hemi-athetosis.

Dr. H. V. DICKS supported Dr. Critchley in his pessimistic outlook. He admitted an organic basis in spasmodic torticollis, but felt that a functional element was also present in the sense in which psychologists spoke of purposiveness.

Professor HENRY COHEN regarded Dr. Critchley's classification of torticollis as a useful clinical basis. The psychogenic cases were more commonly seen in the young; the movement was purposive in origin, and this type of case was usually amenable to psychotherapy. There were three features of chronic encephalitic torticollis which merited comment: first,

its extreme rarity; secondly, its transitory character; and, thirdly, the torticollis was part of a more general dystonia and might be preceded or followed by Parkinsonism. The natural history of the fourth group was fairly constant. The patient was usually over 40 years of age and showed a unilateral tonic-clonic torticollis sometimes with bilateral retronuchal involvement. Occupation, ocular muscle imbalance, psychopathic tendencies, and other factors might play a predisposing part, but treatment directed solely to these produced at best only partial and temporary alleviation. In selected cases operation at this stage, though purely palliative, was a most helpful measure.

Dr. DOROTHY RUSSELL recorded the accidental experimental production of torticollis in a monkey. This had followed an intracardiac injection made by a colleague. The animal's brain, examined about eighteen months later, showed a symmetrical butterfly-shaped area of softening in the subthalamic region which histologically appeared to be an infarct. Dr. F. R. FERGUSON (Manchester) recognized the psychological element in spasmodic torticollis, and agreed with Professor Cohen that a distinct type could be recognized in the elderly. He did not, however, agree that the spasm in these patients was confined to the neck. He advocated a combination of physiotherapy and surgical treatment until the part played by organic and psychogenic factors could be more clearly defined.

Mr. JEFFERSON, in a warm tribute to Professor Olivecrona, urged that the organic background of this neglected disorder should be more fully explored, and that the surgical treatment should be taken up more vigorously in this country.

COMBINED SECTIONS OF NEUROLOGY AND ORTHOPAEDICS

Wednesday, July 20

Sciatica

After the chair had been taken by Mr. GEOFFREY JEFFERSON (Manchester), President of the Section of Neurology and Psychological Medicine, Dr. WILFRED J. HARRIS opened a discussion on sciatica. Dr. Harris, in a general review of the subject, said that sciatica might be of the high type, in which case the lesion was above the level of the sciatic notch, or low, when the lesion was at or below the level of the notch. In the first group the possibility of skeletal changes must always be borne in mind—conditions such as congenital abnormalities of the spine, new growths, or inflammatory lesions such as tuberculosis, and, lastly, hernia of the nucleus pulposus. The spinal cord or nerve roots might be the site of a neoplastic or inflammatory process, requiring investigation as in cases in which the lesion was at a higher level. Low sciatica was more difficult to elucidate, for after such well-defined causes of neuritis as lead poisoning or diabetes were excluded (or more rarely found) cases remained in which chill, slight trauma, or focal sepsis were the only detectable factors, and a considerable residue in which the nerve pain had to be labelled "idiopathic." The truth was that there were still unpleasantly big gaps in our knowledge of the aetiology of sciatica.

Professor JOSEPH S. BARR (Boston, Mass., U.S.A.) described only one type of sciatica—that resulting from compression of a nerve root by a prolapsed intervertebral disk, or hernia of the nucleus pulposus. Although this lesion was found in only a minority of the cases, it was of great interest as being the most recent and well-defined addition to our knowledge of sciatica. Though lesions of the intervertebral disks had been described in such admirable detail by Schmorl, he was not aware that posterior protrusions could be of clinical significance. In brief, he noted merely that more or less posterior protrusion was present in about 15 per cent. of spines examined post mortem. Although a displaced disk might rarely produce complete paraplegia the typical syndrome was a sciatica with astonishingly few clinical signs referable to the nervous system. The crucial finding in localizing the compression was a constant filling defect opposite one of the lower lumbar intervertebral disks in the radiographic picture obtained after the injection of 5 c.cm. of lipiodol into the spinal theca. Operative removal of the mass was usually indicated, and laminectomy with removal of the hernia had been performed in eighty-three cases seen at the Massachusetts General Hospital. The results were most satisfactory.

Professor HENRY COHEN (Liverpool) discussed the common type of sciatica in which "rheumatism" was the only obvious cause—a lesion allied to fibrositis. He invited consideration of four points which had a direct bearing on the problem. First, that nerves and muscles had a fascial covering which contained a small space lined with mesothelium: this allowed gliding movements to occur, and, as in joints, interference with movement and pain would result if the space contained adhesions. Secondly, an inflammatory focus in the soft parts of the lumbar region frequently caused pain referred along the course of the sciatic nerve: injection of the affected area with a local anaesthetic abolished not only the local pain and tenderness but also the secondary sciatica. Thirdly, the periarticular areas of the lumbar region were supplied by nerve filaments arising from the fourth and fifth lumbar and first sacral nerves. Fourthly, there was a rich lymphatic anastomosis in the lumbar region which enveloped nerves as well as muscles: a localized infection might therefore rapidly become widespread. In a series of 420 private cases of sciatica he had found that most of his patients recovered completely within a relatively short period: they behaved as if they were suffering from an inflammatory lesion which ran a fairly well-defined course. In the early days rest in bed and sedatives were essential. If recovery did not follow within five or six weeks, persistent pain was due either to the presence of adhesions or to a major lesion which at first had not been apparent. As with joints, the presence of adhesions called for treatment designed to break them down. Manipulation and the epidural injection of saline solution were two ways of accomplishing this. He favoured epidural injection, and employed 2 per cent. (hypertonic) saline solution, which had the effect of disturbing intraneural relations, so tending to break up scar tissue within the nerve trunks.

Dr. MACDONALD CRITCHLEY described various causes of sciatica, none of them common, but all of importance. He described cases in which minor traumata or abnormality of posture were followed by sciatica: commercial travellers driving for hours in small motor cars with badly sprung seats, the front rims of which pressed into the back of the thigh; miners sitting tailor-fashion in low galleries; and an artists' model who was required to sit for long periods in an unaccustomed attitude. Damage to the sciatic trunks during the course of a protracted labour was a well-known entity, and it was often found that the lateral (external popliteal) division was the more liable to suffer. This was due to the lateral division being compressed against the ischium, whereas the medial division rested on the less resistant pyriformis muscle. Sciatica might also result from varicosity of the veins draining the nerve trunk. The presence of varices in the legs of a patient with sciatica was always suggestive, though varicosity of the veins of the nerve might occur as an isolated lesion. Sometimes the varices could be felt as a soft mass when the patient was examined in the erect position.

Dr. FERGUS R. FERGUSON (Manchester) distinguished three types of sciatica: neuritic, neoplastic, and nuclear. It had surprised him to find that the neoplastic type was often characterized by a sudden onset. He emphasized the importance of lumbar puncture and determination of the protein content of the cerebrospinal fluid. The presence of a tumour was suggested by finding xanthochromia, an increase in the protein content, and absence of manometric changes when the jugular veins were compressed. Such findings should lead to localization of the block by the injection of lipiodol. At the same time, it must be remembered that an increase in the protein content of the cerebrospinal fluid was often found in the neuritic type. The PRESIDENT, who had operated on two

cases of neurofibroma causing sciatica in the series of cases reported by Dr. Ferguson, said that this type of tumour was easily missed. To overlook a growth of this type was all the more unfortunate seeing that surgical removal so often resulted in a complete cure.

Most of Dr. HUGH G. GARLAND'S (Leeds) cases of "idiopathic" sciatica had been dealt with by epidural injection of saline solution. He felt that it was the volume rather than the nature of the fluid that mattered, and there was little to choose between 0.5 per cent. novocain and normal saline solution. He reported thirty-seven cases in which fifty-two injections had been given. Immediate and noteworthy improvement, often amounting to complete relief, was seen in 80 per cent. In the remaining cases further injections had been given, but the results were discouraging. In other words, if a first injection failed it was unlikely that a later one would succeed. The only complication he had seen occurred in four cases in which, after the injection of about 50 c.cm. of fluid (he usually injected 60 to 160 c.cm.), the patient went into an epileptiform convulsion, losing consciousness for a few seconds. He attributed this to a sudden rise in intracranial pressure; fortunately no lasting ill effects had been observed.

Chill as a cause of sciatica had never appealed to Dr. J. B. MENNELL. There were records of people being chilled on a very large scale—as when the *Titanic* went down—yet nothing had been heard of sciatica among the survivors, although they had been exposed to cold for many hours, scantily clad and sitting on hard seats. His experience had led him to pay great attention to focal sepsis.

SECTION OF RADIOLOGY

Wednesday, July 20

X Rays and Haemoptysis

With Dr. R. BOULTON MYLES in the chair, Dr. F. G. WOOD opened a discussion on *x* rays in the elucidation of haemoptysis. Dr. Wood's paper is published in this issue at page 211.

Dr. W. E. LLOYD, speaking particularly of tuberculosis, said that haemoptysis could occur at any stage in the disease, and there were many cases in which it was the first symptom. Patients rarely ignored this symptom, and this gave the doctor opportunities of diagnosing very early cases in which physical signs were absent. It was well known that in the days before accurate radiography the patients in such cases who had had sanatorium treatment at once became well and remained well. Clinicians now had the added advantage of accurate radiological investigation. The earliest radiographical evidence of tuberculosis in Dr. Lloyd's experience was an apical area of infiltration with or without evidence of incipient cavitation. Tomography should be helpful here. Reliance on radiographic appearance alone was only justifiable when a single cavity was demonstrable. When the appearance was doubtful further radiographs should be taken after a month, at the end of which period cases of so-called pulmonitis would have cleared up, whereas a tuberculous focus would remain. Frequent sputum examinations were a valuable aid to diagnosis, but in some cases of haemoptysis due to tuberculosis there was no sputum. Basal infiltration always suggested bronchiectasis, and this could be confirmed by lipiodol; but basal tuberculosis was not so uncommon as it was once thought to be. In more advanced cases, where the clinical diagnosis was simple, radiography indicated the extent of the disease. Haemoptysis occurred in fibroid pulmonary tuberculosis where the condition was clinically inactive: the physical signs were those of chronic bronchitis and emphysema. Radiological investigation revealed the true nature of the disease. Sometimes there was collapse of the lung, usually when the haemoptysis was profuse. Aspiration of blood might alter the radiographic picture temporarily.

Dr. S. WHATELY DAVIDSON (Newcastle-on-Tyne) said that with the development of thoracic surgery it was essential to obtain evidence of active disease in the lung and of the progress of the disease after operation. The difficulties were due to the thoracic bony structures, pathological changes round the lesion, lipiodol residues, and operative procedures such as thoracoplasty and plombage. Much information could be gained by ordinary radiographic methods, but such information was often not enough for the thoracic surgeon. Indiscriminate use of lipiodol was to be deprecated on account of the residues, which might take months to disappear, and might, therefore, prevent successful re-examination and observation of progress. The tomographic method was essential in selected cases, and might obviate the necessity for lipiodol. Twining of Manchester had placed it within the reach of British radiologists. It was possible by this method to locate filling defects in bronchi, and to demonstrate cavities which remain uncollapsed after procedures such as thoracoplasty and plombage. The follow-up of cases by radiography was important and was a means of encouraging collaboration between clinician and radiologist.

Dr. E. L. RUBIN (Liverpool), discussing haemoptysis with special reference to cardio-vascular disease, said that radiography was of greater value in excluding lung disease than in establishing the presence of heart disease, but that it might be very helpful in the latter condition. The commonest cause of haemoptysis in heart disease was mitral stenosis. If there was undue prominence of the middle arc on the left border of the heart in a case of haemoptysis oblique views should be taken in order to demonstrate or exclude enlargement of the left auricle. Haemoptysis might happen in early cases with little structural change, while in cases with marked enlargement of both auricles this symptom might be absent. In congenital heart disease haemoptysis was commonly the result of superimposed pulmonary tuberculosis, but it did arise even in cases where there was complete stenosis of the pulmonary artery and no patent ductus arteriosus. The blood supply to the lung in such cases came via the bronchial arteries, which were enlarged and atheromatous. Haemoptysis occurred occasionally in cases of hypertension, and *x*-ray examination might be the only means of demonstrating the previous presence of high blood pressure. Radiographs showed elongation and tortuosity of the thoracic aorta and sometimes tortuosity of the oesophagus. Aneurysm was a cause of haemoptysis, which might also result from pulmonary arteriosclerosis. Infarction of the lung was not often seen radiographically. Massive infarction was rapidly fatal and small infarctions produced the appearance of localized collapse—they could not be diagnosed radiologically unless the clinical evidence suggested their presence. Haemoptysis might arise from congestive changes in the lungs due to heart failure, but the radiographic appearances were subject to wide variation and might simulate metastatic carcinoma or pulmonary tuberculosis.

Dr. E. C. WYNNE-EDWARDS (Mundesley), discussing the occurrence of haemoptysis in known cases of pulmonary tuberculosis, stressed the importance of radiographs in the lateral and oblique positions in addition to the antero-posterior position, and drew attention to the need for tomography in some cases. It was important in a given case to decide whether haemoptysis was a cause or only a symptom of a spread of disease. There were certain cases in which there was recurrent haemoptysis without obvious deterioration in the condition of the lung or in the general health. There were, however, two other types in which a radiograph following a haemoptysis showed a fresh area of disease. In one this area had really been present before the haemoptysis, and was often excavated in whole or in part. In the other the lesion was fluffy in outline and was usually in the lower lobe. It might be a true tuberculous extension or an area of pneumonitis due to aspiration of blood. Subsequent radiological investigation would establish the diagnosis because the latter condition would clear up after a time. A third type was that in which there was collapse of a whole or part of a lobe due to bronchial blockage by blood clot. The differential diagnosis in such a case was important

because the patients required different treatment. He would like to know whether radiologists had any method of deciding in a given case to which of these causes spread was due.

Dr. E. J. E. TOPHAM drew attention to new growth of the lung as a cause of haemoptysis and quoted two cases in which it had been the first symptom. Referring to a statement by Dr. Lloyd, he said he doubted whether a radiologist was justified in diagnosing pulmonary tuberculosis on radiographic appearances alone.

Dr. P. KERLEY said that he had seen cases in which haemoptysis was the first symptom of an abscess in the lung. The radiographic appearance of blood in the lungs was important from a diagnostic point of view. Inhaled blood gave the appearance of incompletely resolved lipiodol. The best radiographs he had seen were taken with a rotating anode tube. Dr. Kerley quoted a rare case of recurrent haemoptysis in which the radiographic appearances were those of inhaled blood. There were no indications of other disease and the abnormal radiographic appearances disappeared soon after each haemoptysis. Bronchoscopy revealed a haemangioma of the trachea.

The CHAIRMAN stressed the importance of close collaboration between clinician and radiologist, without which it was impossible for the radiologist to get the best results. It was important that radiologists should have more opportunities of following up cases.

Dr. WOOD, in reply, said that the orthodox view had always been that the left auricle formed no part of the left cardiac border. This was based on post-mortem appearances, which were obviously misleading. Kymography revealed different wave forms in different parts of the heart, and recent papers by Stumpf and by Bordet on kymography confirmed the fact that the left auricle formed part of the lateral border.

SECTION OF PHARMACOLOGY

Wednesday, July 20

History of Anaesthetics

At the opening meeting of the Section of Pharmacology, Therapeutics, and Anaesthetics, the President, Professor A. J. CLARK (Edinburgh), gave an address on certain aspects of the history of anaesthetics.

Professor Clark said that this subject had a unique interest for the pharmacologist because anaesthetic agents were the first synthetic organic chemical products employed to produce a therapeutic effect of major importance. The discovery of the pharmacological action of nitrous oxide was of special local interest, because Sir Humphry Davy, born in Penzance, published in 1800 his *Researches Concerning Nitrous Oxide*, in which it was suggested that the gas could be used with advantage during certain surgical operations. This prophecy, however, was forgotten, and it was not fulfilled until forty years later. Professor Clark surveyed the early work of Hickman in connexion with carbon dioxide and the early use of nitrous oxide by Wells. The news of Morton's successful employment of ether in 1846 quickly reached this country and created considerable interest in anaesthesia, which led to the discovery of the anaesthetic properties of chloroform by Simpson in 1847. For the next fifteen years many other drugs were investigated, only to be discarded in favour of the original three agents—nitrous oxide, ether, and chloroform; not until 1923 were there further appreciable advances in this subject. He believed that further progress in anaesthesia was only likely to be made by co-ordinated work and by carefully organized large-scale trials of new agents. He regretted that, while this country was a pioneer in the investigation of problems in the early days of anaesthesia, recent advances had been made mainly abroad.

The President then exhibited a cinematograph film showing individual variations in the effect of sodium evipan upon mice.

Variations in Effective Anaesthetic Doses

Opening a discussion on variations in effective anaesthetic doses, Dr. J. W. TREVAN described a series of experiments in which mice were subjected to intravenous injection of paraldehyde. He showed that, owing to the overlap of the statistical distributions of the fatal and of the anaesthetic doses, no single dose, the administration of which would ensure that all mice were anaesthetized without killing more than one in 10,000, could be prescribed. This could not be overcome by giving the dose in six fractions. The only feasible method was slow continuous infusion of a dilute solution which was stopped when anaesthesia had reached the desired level. Similar results had been obtained with sodium amytal, sodium evipan, and avertin.

Dr. C. J. M. DAWKINS referred particularly to the effect of changes in the weather as a cause of individual anaesthetic response in the patient. In a series of 675 dental cases he had found that induction time increased as the barometric pressure fell. With relative humidity the lower the percentage the shorter was the induction time. He had also investigated the connexion between the complexion of the patient and the induction period, and he found that, whereas the average time taken to produce anaesthesia in fair-haired patients was fifty-two seconds, the figure for dark-haired was sixty-two seconds, and for red-haired sixty-eight.

Spinal Anaesthesia

Professor A. D. MACDONALD (Manchester), referring to spinal anaesthesia, considered there was only one way in which a spinal injection of a local anaesthetic might kill an animal—namely, by respiratory depression and paralysis. Provided the phrenic roots and respiratory centre were not exposed to paralysing concentrations of the drug, the anaesthetic seemed perfectly safe. If adequate oxygenation was maintained, it was extremely difficult to kill an animal with a local anaesthetic irrespective of the method of administration. The principle of individual variation seemed to apply to those cases in which paralysis of tail, bladder, and rectum was observed after spinal anaesthesia. He believed that this effect was provoked solely by the anaesthetic drug, and he disregarded mechanical trauma and other constituents of the solution, such as dilute alcohol or glycerin, as possible causal agents.

Basal Anaesthesia

Dr. B. P. HILL (Reading), discussing basal narcotics, said that cases showing hypersusceptibility were very rare when paraldehyde was employed. More frequent susceptibility was observed with avertin, and more information as to the cause and avoidance of symptoms was available. He thought that the damage to the liver cell produced in certain cases indicated hypersusceptibility, and was due to deficiency of a substance which normally protected this organ from necrosis during detoxication of the drug. Hypersusceptibility to barbiturates was inconstant even in the same individual. Certain inconstant factors predisposed to an undue reaction after a normal dose. There was no reliable test by which a hypersusceptible patient could be detected; he had tried out a skin test which proved to be quite unreliable.

The PRESIDENT asked if individual variation could be controlled by fractional dosage. He believed that administration of a non-volatile anaesthetic in a dosage per kilogramme of body-weight was unsafe. In practice, however, susceptibility to paraldehyde per rectum was not such as might be expected from animal experiments. Dr. R. K. FOULKES (Exeter) inquired if liver extract should be given before the administration of chloroform and avertin in order to minimize the risk of toxic effects. Dr. O. C. CARTER (Bournemouth) had given 1,500 administrations of avertin without anxiety and had never observed damage to the liver cell. He had used this drug for operations upon the gall-bladder, and even when there was jaundice. Dr. B. P. HILL (Reading) quoted a case of damage to the liver following avertin in which severe headache, vomiting, denydration, and conjunctival icterus were marked features.

Professor W. P. KENNEDY (Baghdad) stated that the depth and duration of avertin narcosis varied considerably in different patients; and so the amount of supplementary anaesthetic necessary was a variable quantity. He believed the amnesia produced by avertin to be a great advantage. Mr. W. ETHERINGTON WILSON (Torquay) emphasized that a safe and well-thought-out technique was important in helping to eliminate the various dangers of spinal analgesia. He drew attention to the method of timed vertical ascent based upon mock spinal experiments. This was a safe and simple method achieving real control. It was, he believed, safe to administer spinocain by this technique, and he described a small series of cases in which percaine 1 in 2,500 had been given to infants with satisfactory results.

Ovarian Therapy

Dr. P. M. F. BISHOP, in a paper on ovarian therapy, stated that the oestrogens, of which oestrone, oestriol, and oestradiol were available, had a therapeutic effect when given by the mouth. Intramuscular administration, however, was preferable, and esterification of the hormone enhanced the effect. The action of oestradiol benzoate administered in this fashion lasted for three days, and the desire to increase further the interval between injections had led to the institution of crystalline tablet implantation. With this method a small compressed tablet of crystalline oestradiol benzoate was introduced under the skin through a small incision; by reason of the slow absorption there was a continuous constant effect over a period of time. The oestrogens were of value in the treatment of true menopausal symptoms, but he believed that, even in large doses, they were ineffective in conditions commonly thought to be associated with the menopause—for example, menopausal arthritis.

SECTION OF PHYSIOLOGY AND BIOCHEMISTRY

Wednesday, July 20

Methods of Testing Colour Vision

Professor R. J. S. MCDOWALL took the chair when the programme in this section was opened with a paper by the President, Professor H. E. ROAF (Liverpool), on methods of testing for colour vision and theoretical deductions from observations on colour vision.

Professor Roaf referred to the fact that in the spectrum there are two main maxima of colour discrimination corresponding to the sensations of yellow and blue-green. These two regions had been studied to determine whether the sharpness of discrimination was related to any special recognition of these colours when there was no fixed wave-length with which to compare them. The method of investigation using the spectroscope was illustrated first in respect of the yellow sensation, the range being marked between extreme points where the subject saw the yellow to be just tinged with the neighbouring colours of the spectrum. Figures obtained with respect to normals showed a narrower range of wave-length—that is, a higher power of discrimination—than for those with defective colour vision. Similar studies in the blue-green had led to the conclusion that subjects with defective colour vision had no special difficulty in distinguishing colours produced by this region. Professor Roaf then went on to discuss the various methods in use for testing for defective colour vision, mentioning first the fundamental lantern method. In regard to the Nagel anomaloscope, he cited evidence which suggested some systematic defect in this method. Passing next to the use of pseudo-isochromatic plates on which the normal person could see a design not visible to the subject with defective colour vision, he considered Ishihara's plates as probably the best form, and explained how they "worked." Finally, he dealt with binocular colour fusion, and instanced practical applications that might arise out of a study of this aspect of the subject.

Professor MCDOWALL asked whether perception of any one colour was more acute than the rest. Dr. A. SAND (Plymouth) raised the question of the mechanism of conveying colour to consciousness, and also referred to colour perception in the lower animals. Professor ROAF, in reply, illustrated the retinal cones with their different colour filters in birds, which would explain a three-colour vision. Dr. T. S. HELE (Cambridge) inquired whether there was any evidence of defective colour vision being associated with vitamin deficiency. A number of interesting points were then raised by Dr. W. R. G. ATKINS (Plymouth): whether didymium glass would be of use in detecting defective colour vision; how far colour vision was affected by fatigue; and to what extent the owl was sensitive to infra-red. Dr. L. H. N. COOPER (Plymouth) drew attention to the desirability of testing the colour vision of chemical analysts who have to match colours accurately.

Hearing in the Lower Animals

With the President, Professor H. E. Roaf, in the chair, Dr. A. SAND (Plymouth) opened a discussion on hearing with special reference to the lower animals.

Dr. Sand stated that in fishes the organs of the lateral line had a histological structure almost identical with the hair cells of the organ of Corti, and they arose in embryological development out of the same anlage as the eye, so that one spoke of the acoustico-lateral system, which included the lateral line and labyrinthine organs. By physiological experiments recording the active potentials from lateral line nerves, it was found that lateral line receptors were exceedingly sensitive to vibrations of low frequency. Moreover, perfusion experiments showed that a constant deformation of the hair cell provided a slow-adapting rhythmical response in single fibres. Extending these conceptions to the organ of Corti, one was led to recognize that the frequency of discharge was not determined by the intensity of the stimulus, which was an alternating (or oscillating) mechanical change, but was driven by the frequency of the stimulus up to the limit of frequency of which the nerve was capable. There followed phenomena of alternation and equilibration which destroyed the direct connexion between the frequency of the sound stimulus and the frequency of the nerve impulse discharge. They were thus led to the resonance or "place" theory of pitch discrimination, and the interpretation of loudness in terms of the number of sensory elements excited. Fishes had been shown to have excellent hearing and to be capable of discriminating pitch to within a minor third. But fishes had no cochlea, and so the resonance theory could not apply to them.

Dr. H. C. PURCER SMITH (Barnes) raised a question regarding high levels of intensity in relation to the sensation of pain, while the PRESIDENT drew attention to the possible relation of intensity to the number of hair cells affected. Dr. SAND, in reply, stated that loudness was conveyed by the greater or less width of basilar membrane set in oscillation.

In the afternoon the section attended the Marine Biological Station, where a series of extremely interesting demonstrations were given by members of the staff and visiting members.

SECTION OF PATHOLOGY, BACTERIOLOGY, AND IMMUNOLOGY

Wednesday, July 20

Aetiology of Rheumatism

With the President, Dr. M. H. GORDON, in the chair, Dr. H. J. GIBSON (Bath), opening a discussion on the aetiology of acute rheumatism and rheumatoid arthritis, proposed first to discuss the phenomenon of throat infection with *Str. haemolyticus*, followed by a latent period which in turn was followed by an attack or relapse of acute rheumatism. The epidemiological and serological findings taken together provided a mass of evidence in favour of the aetiological relationship of the haemolytic streptococcus to rheumatic fever. Contrary evidence from sporadic cases, not susceptible to bacteriological study in the pre-rheumatic stages, was less

convincing. Two alternative theories appeared to fit the observed facts: either the disease was an infection with *Str. haemolyticus*, or some other specific rheumatic agent was primary and the streptococcus merely one of a number of secondary inciting causes. Direct evidence for the former theory was slight, though failure to find organisms was not conclusive evidence against a low-grade generalized infection. Failure to find the organisms had led to the theory of allergy. The acceptance of this presupposed that we knew that the pathogenic potentialities of the streptococcus were insufficient to explain how chronic infection with it could cause disease of the rheumatic type by ordinary means. Such an assumption was unwarranted. The allergic theory had, however, received support from recent histological and experimental studies, and the hyperergic reaction probably had a place, whatever the nature of the primary infecting agent, and was an important field of investigation that would certainly lead to a fuller understanding of the pathogenesis of the disease. Therapeutic evidence of the effects of Dick toxin, passive immunization with serum, or administration of sulphanilamide did not support the streptococcal viewpoint or disprove it. The alternative hypothesis of a specific rheumatic infective agent was an almost equally satisfactory explanation of the facts as we knew them, and there was much to be said in favour of it. The relation between acute rheumatism and rheumatoid arthritis was a subject of much controversy. Clinically there was little similarity, but on the pathological side there was evidence that the diseases might be related. Haemolytic streptococci had been recovered from the blood and joint fluid in rheumatoid arthritis and these streptococci agglutinated with the patient's serum. The agglutinins resembled the natural antibodies of normal sera more than immune agglutinins following infection or immunization.

Dr. G. H. EAGLES said that the possibility of a virus playing a part in the causation of rheumatism had been considered by several investigators. Schlesinger, Signy, and Amies had shown in rheumatic exudates particles morphologically similar to those of known viruses which were specifically agglutinated by the sera of rheumatic patients in the active stage of the disease. This investigation suggested that these particles were true elementary bodies and were the actual infective agent. Eagles, Evans, Fisher, and Keith extended these observations. "Elementary bodies" were obtained from acute rheumatic exudates, cerebrospinal fluid from chorea with carditis and nodules, joint fluids from rheumatoid arthritis, and, as a control, from non-rheumatic exudates. Morphological examination did not suffice to differentiate between those of rheumatic origin and those of non-rheumatic. Morphological evidence alone was therefore insufficient. Considerably greater significance attached to serological evidence gained by agglutination of these particles by patients' sera. The distribution of positive and negative agglutination was very similar to that observed with the preparations from cases of rheumatic fever, and suggested a common factor in the causation of rheumatic fever, rheumatoid arthritis, and chorea. Adequate controls with non-rheumatic suspensions suggested that positive results were confined to rheumatism. Experiments had been made to establish the infectivity of these particles in monkeys. In certain instances the clinical behaviour had suggested grave cardiac damage as a result of inoculation. These, along with some abnormalities in electrocardiographic records, were suggestive, but had not been supported by pathological findings. He emphasized the need for adequate infection experiments with any supposed "elementary bodies" before these could be accepted as the aetiological agent.

Dr. D. H. COLLINS (Harrogate) said that no one of the pathological phenomena of rheumatism or rheumatoid arthritis was specific to the disease in question. Experimental production of various connective-tissue changes should not be too readily accepted as having direct bearing on the problem of rheumatism. The ultimate aim of experimental work must be to produce rheumatic disease rather than microscopical appearances. In view of the fact that so many of the pathological data were of doubtful specificity and that the clinical differences between rheumatic fever and rheumatoid arthritis were so pronounced, it was better to regard these two diseases as independent. The histologist could see in rheumatic fever phenomena which indicated widespread damage throughout the body, caused either by an infective agent or by its soluble products, together with phenomena resulting from tissue hypersensitivity produced as a phase of the infection. These changes might be followed at any time by the non-specific processes of repair. In rheumatoid arthritis the disease was more clearly localized to the joints and to the subcutaneous tissues which were exposed to trauma. Bacteriological researches in both forms of rheumatism seemed to incriminate the streptococcus. The histological findings, though unlike those of any hitherto proved streptococcal disease, did not weigh against the possibility of a streptococcal aetiology, since the protean capabilities of the streptococcus in pathogenesis were only just beginning to be explored.

Dr. C. A. GREEN (Edinburgh) said that in a group of 200 subjects acute or subacute rheumatic manifestations had been found to be preceded by nasopharyngeal infection in 78 per cent., and in 58 per cent. haemolytic streptococci were still present in the nasopharynx at the onset of the rheumatic syndrome. A relatively high incidence of recent nasopharyngeal infection, 46 per cent., was found in a control group, and haemolytic streptococci were found in 30 per cent. Of the strains from the rheumatic group 87 per cent. were of Group A, while only 42 per cent. of the control strains were of this group. Further indirect evidence of streptococcal infection in rheumatic persons was provided by their raised anti-haemolysin titres. In the quiescent phase the subcutaneous injection of haemolytic streptococcal nucleoprotein might induce local reactions clinically indistinguishable from erythema nodosum, and a general reaction simulating a naturally occurring recrudescence of the acute phase of illness. As direct evidence of such infection cultures from heart valves with vegetations or from pericardial lesions had yielded haemolytic streptococci in nine out of ten consecutive cases of acute rheumatism examined post mortem. Control cultures from healthy valves without vegetations from the same hearts, and of heart blood, were negative for haemolytic streptococci. From six of these cases haemolytic streptococci had been recovered from the nasopharynx during life, and in all instances these were serologically identical with those isolated post mortem. Rabbits inoculated with post-mortem pericardial fluid from rheumatic subjects died as a result of haemolytic streptococcal infection, and showed a peculiar distribution of cocci in their tissues. The same distribution could be recognized in tonsils infected with streptococci, and a similar appearance could be demonstrated in human heart valves with rheumatic vegetations.

Dr. E. P. POULTON said that, in collaboration with Drs. Koerner, Gray-Hill, and Todd, he had observed high antistreptolysin titres in various conditions which had been hitherto regarded as associated with haemolytic streptococcal infection. Apart from acute rheumatism, erythema nodosum, chorea, and acute nephritis, where a high titre had already been described, they had found high values in purpura whether the platelets were normal or reduced, and in two cases where fever and glands following sore throats were the only symptoms. He suggested that acute rheumatism might be a syndrome due to different exciting agencies. The tubercle bacillus appeared to be the cause in one instance, and the relation of the syndrome to the haemolytic streptococcus might be regarded as parallel to the relation of epituberculosis to the tubercle bacillus.

Dr. M. H. GORDON said that he himself had injected rabbits intravenously with a highly virulent virus isolated by rabbit testicle passage from a case of small-pox. These rabbits developed peri-articular swellings from which the virus was recovered in greater concentration in the serofibrinous exudate than from the other organs. Microscopically the lesions showed the same changes as had been seen in lesions of fibrositis in rheumatism. Control experiments with normal horse serum, *Staphylococcus epidermidis*, *Staphylococcus aureus*, and *Bact. coli* were negative. Haemolytic streptococci, however, did produce arthritis. He then tried the effect of mixing virus and streptococci. In these experiments the streptococcus alone sometimes produced arthritis, the virus

alone never, but the mixture always. The streptococcus could never be subsequently isolated from the lesions, but the virus was always present in great amount. *In vitro* the virus had no inhibiting action on the streptococcus, but when the mixture was inoculated intradermally the streptococcus again disappeared, though the virus could be recovered from the skin lesions.

Sir WILLIAM WILLCOX said that progress in our knowledge of this subject was due to recent advances in bacteriological technique. Rheumatism was not a specific disease but a syndrome. Fibrositis occurred in many other diseases, such as gonorrhoea, bacillary dysentery, brucella infections, etc. He urged that investigations should be carried out on virgin soil—that is to say, in primary attacks of rheumatism.

SECTION OF TUBERCULOSIS

Wednesday, July 20

Radiography of the Chest

With Dr. ERNEST WARD, President, in the chair, Dr. GEORGE JESSEL (Leigh, Lancs), opening a discussion on radiography of the chest, said that even when pulmonary tuberculosis had been diagnosed radiography was often of much value, particularly in treatment by artificial pneumothorax and in surgical procedures, and in ascertaining the progress of the disease. Caution must be exercised in interpreting radiographs because the *x*-ray appearances of several chest conditions might at times be indistinguishable from each other.

Dr. G. T. HEBERT said that the radiological interpretation of fibrosis in the lungs had become more difficult since it had been shown that the lung markings were due to shadows caused not by the bronchi but by the vessels. He classified fibrosis into: (1) perifocal, giving nodular shadows and caused by tuberculosis or silicosis; (2) interstitial, giving haziness or a ground-glass appearance and frequently associated with emphysema; and (3) peri-bronchial, simulating congestion. Dr. Hebert described how thirty radiographs of patients he had fully investigated, or whom he had been able to follow up long enough to be certain about the diagnosis, were sent without clinical details to about seventy radiologists, physicians, and tuberculosis officers for an opinion as to whether fibrosis was present or not. In regard to some films a correct diagnosis was given by 85 to 90 per cent. of the "examinees"; in regard to others an erroneous diagnosis was given by over 50 per cent. From this investigation he concluded that it was difficult, with certain exceptions, to recognize fibrosis of the lungs from the radiographic appearances alone; a diagnosis of fibrosis made in this way was usually based on inference rather than on shadows actually cast by fibrous tissue. Contraction of the lung was good inferential evidence of fibrosis. The earlier stages of the nodular form of silicosis might be simulated by several non-fibrotic conditions. One should beware of ascribing linear shadows to tuberculous fibrosis unless there was much nodular or confluent shadow in the neighbourhood, and of regarding the wall of a circular or oval cavity as fibrous just because it was dense. And, above all, one should beware of diagnosing general fibrosis when the pulmonary markings were merely more prominent or more streaky than usual.

Dr. W. BURTON WOOD, without minimizing the importance of the physical examination, suggested that physical signs were almost useless in the diagnosis of pulmonary tuberculosis. On the other hand, radiology could not be relied on alone. He deplored the use by some radiologists of the terms "active" and "non-active," when they were based solely on radiographic appearances. Several chest conditions could give similar appearances. He expressed some doubts of the value claimed for tomography.

The PRESIDENT emphasized that radiological examination was essential, but some physicians were specially gifted in the elicitation of physical signs. For contact cases an elaborate examination of the chest in addition was generally not necessary, particularly as contacts were often much more likely to agree to having a radiograph taken. All patients referred to the tuberculosis officer should be *x*-rayed.

Dr. G. GREGORY KAYNE (Staines) expressed surprise that no radiologist had been chosen to be one of the openers of the discussion, even though all the three openers practised radiological examination of the chest. This would help, however, to stress the fact that a knowledge of radiology was now an essential equipment of the tuberculosis physician. But the radiologist was still required for consultation in difficult cases and for advice on any ancillary radiological examinations that should be carried out to elucidate a doubtful case—for example, bronchography, oblique films, tomography, etc. He referred to taking films in vertical shift for the detection of small shadows behind the ribs. The interpretation of tomograms might be misleading, as demonstrated by a recently published case—the tomograms showed a whole system of cavities; at necropsy shortly afterwards only one cavity was found. Radiological examination was of the greatest value in the prevention of tuberculosis, for it enabled the detection of minimal lesions in the apparently healthy. Dr. Hebert's investigation stressed the fact that skiagrams should not be interpreted in terms having a pathological connotation.

Dr. PETER W. EDWARDS (Market Drayton) stressed the value of thorough screening. The interpretation of tomograms was still uncertain, but there was no doubt as to the value of the method. Stereoscopic films were useful in the diagnosis of early cases and in locating foreign bodies. In regard to cutting of adhesions, radiology was of little value—one must insert a thoracoscope and look in. He stressed the value of serial skiagrams both in diagnosis and in deciding treatment, and referred to the confusion that might arise from shadows persisting after injection of lipiodol.

Dr. H. T. CHATFIELD (Plymouth) referred to the frequency of pulmonary tuberculosis among naval men from the China station as compared with those from other stations. Dr. A. McK. FLEMING (Gibraltar) contributed some remarks on the recent organization of the anti-tuberculosis campaign in Gibraltar. Dr. J. R. GILLESPIE (Belfast) recommended the use of the subcutaneous tuberculin test in diagnosis. Dr. D. A. POWELL (Cardiff) stressed the value of screening and the need for revision of the nomenclature in radiological interpretation of radiographs. Dr. SCOTT (London), speaking as a general practitioner, defended the use of the stethoscope. Dr. H. S. HOWIE WOOD (Shanklin) suggested that radiologists with small but adequate plants should be allowed to take radiographs even if someone more expert was asked to interpret the films.

SECTION OF OTO-RHINO-LARYNGOLOGY

Wednesday, July 20

Malignant Disease of the Pharynx

Mr. LIONEL COLLEDGE (the text of whose paper was published in the *Journal* of July 23, p. 167), opening a discussion on the treatment of malignant disease of the pharynx and larynx and its results, said that the problem of treatment had been complicated by the introduction of irradiation, especially as in so many cases tumours which responded to this were those particularly amenable to ordinary surgical measures. He divided the malignant growths into tumours of the oropharynx and of the laryngo-pharynx, confining the discussion to epitheliomata, which were by far the commonest. Unless he found by biopsy that the epithelioma was of group IV, a particularly radio-sensitive type, he preferred surgical treatment. In the oropharynx diathermy gave on the whole the best results. While admitting that the functional result in surgical treatment of carcinomata of the laryngo-pharynx and larynx was not so universally good as in irradiation, he said that the percentage of cures was so much higher in the former that it should always be the procedure of choice.

Mr. C. HAMBLEN THOMAS, in a paper on the treatment of such tumours by irradiation, said that an operation, when possible, should be preferred to irradiation, having regard

always to preservation or restoration of function. The suitability or otherwise of a growth for treatment by irradiation depended upon its situation and the character of its cells. The presence or absence of enlarged lymph glands also influenced the choice of treatment, glandular metastases being highly resistant to irradiation. In many cases irradiation could be a most useful preliminary to operation, provided not more than about twenty-five days elapsed between the two treatments. On the whole he preferred radium needles to radon seeds, and deep *x* rays to the radium bomb. To ensure better results from irradiation all cases should be treated as in-patients; institutional accommodation for these people was, at present, hopelessly inadequate.

Mr. E. MUSGRAVE WOODMAN (Birmingham) said that he had gradually abandoned diathermy for the oropharyngeal growths in favour of irradiation. Further, he found better results from radium needles than from radon seeds. In extrinsic carcinoma, such as post-cricoid growths, one must not hesitate to sacrifice a healthy larynx if by such an operation one could save the patient's life.

Mr. F. C. ORMEROD then showed lantern slides to illustrate the technique of treatment of carcinoma of the pharynx and larynx by the radium bomb, together with radiographs illustrating the results of treatment of post-cricoid growths and metastases in the cervical glands.

Injuries of the Nose

Mr. T. POMFRET KILNER, in discussing injuries of the nose, stressed the importance of early and complete disimpaction and setting of all simple fractures. He considered intratracheal anaesthesia and efficient blood-suction apparatus essential for careful unhurried work, and advocated the use of a simple splint of stent moulded over lead for one to two days after operation. In fractures accompanied by external skin wounds he deprecated débridement, there being insufficient skin in this particular region to allow of trimming of the edge of the wound without producing distortion. A careful search should be made for foreign bodies in such wounds, and all glass and road-metal fragments should be removed. Fragments of wood were particularly apt to be overlooked. Completely separated bone fragments should be removed, and, in the absence of infection, an attempt should be made to manipulate displaced fragments into correct position. The wound should be sutured accurately but loosely, and a sharp watch should be kept for infection calling for early removal of sutures. Associated fractures—for example, of the malar bone—should be looked for and treated. In cases in which there was loss of surface skin he advised early free skin-grafting to prevent distortion. Where the loss involved all thicknesses he advocated careful mucous-membrane-to-skin suture around the defect, thus paving the way for future reconstruction.

Mr. Kilner showed lantern slides illustrating various types of injury, and the results of treatment of these by simple disimpaction and setting, surgical refracture, hump reduction, shortening, cartilage and bone grafting, and reconstruction by forehead and other flaps.

Mr. E. WATSON-WILLIAMS (Bristol) thought that simple fractures of the nose were the province of the nasal surgeon, but was anxious to hear from Mr. Kilner the best method of treating fractures involving backward displacement of both superior maxillae. Mr. HAMBLEN THOMAS preferred to operate, if possible, within seven days of the injury. He asked if Mr. Kilner could guide him in the treatment of collapse of the alae nasi. Mr. I. SIMSON HALL (Edinburgh) asked whether cartilage or bone grafts were preferable. Mr. GRIMWADE (Birmingham) asked if a chisel were preferable to a rasp for removing humps of the nasal bridge.

Mr. KILNER, in reply, said he preferred cartilage to bone grafts, being so much easier to mould and manipulate, except in small children. In the case of fractures he advocated immediate reduction and replacement; the next best time was as soon as swelling had subsided; but even as long as five weeks after the accident it was often possible to manipulate the fragments without refracture. A chisel was preferred to a rasp, as the latter left much bone dust. He had not had cases of collapsed alae referred to him, but thought that such cases would benefit by a shortening operation on the septum rather than by any plastic alar operation.

Deflection of the Septum

Mr. W. S. SYME (Glasgow) opened a discussion on septal deflection. He maintained that there were many reasons why a septal deflection tended to be blamed for more ills than it deserved, and through this to be treated surgically more frequently than was actually necessary. It was easy to diagnose, generally simple to treat surgically, and such treatment did not usually cause extreme discomfort or lasting harm. Deflection was reported as occurring in from 60 to 80 per cent. of Europeans with no ill effect, and was stated by some to be commonly due to trauma, by others seldom so. Was it abnormal? Its most troublesome effect was the blocking of sinus drainage. Nature made compensation for the difference in size of the two nasal cavities. When was surgical intervention justified?

Mr. T. RITCHIE RODGER (Hull) questioned whether there had been excessive operation on the septum in early days. He thought that submucous resection still had a great sphere of usefulness, both as a means of increasing the patient's comfort and to facilitate surgical approach to other nasal conditions requiring operation.

SERVICES SECTION

Wednesday, July 20

Evacuation and Treatment of Gas Casualties

With Surgeon Rear-Admiral F. J. GOWANS (Plymouth) in the chair, Major E. H. HALL, R.A.M.C. (Porton), opened a discussion on the treatment and evacuation of gas casualties.

Confining his remarks to the problem as it affected the R.A.M.C. officer who had to deal with gas casualties in the forward areas during actual warfare, Major Hall pointed out that gas casualties in these areas were first dealt with by regimental stretcher-bearers and brought to the regimental aid-post. Here those suffering from the effects of lacrimatory gases could be reassured and returned to their units. Also, at this post the diagnosis must be made between patients severely affected by sensory-irritant gases and those less severely affected by lung-irritant gases. The former should be retained at the post until fit to return to their units, but the latter must be regarded as stretcher cases and treated with rest and warmth and removed to the field ambulance as quickly as possible. Vesicant gas cases would probably form the bulk of the gas casualties, and for dealing with these Major Hall advocated the marking off at the aid-post of a dirty area, a decontamination area, and a clean area. There should also be extra transport to provide supplies of clean clothing. This would ensure that no cases were sent to the next medical unit not properly decontaminated. Major Hall considered that in a war of rapid movement the provision of special units purely for dealing with gas casualties was impracticable. At the field ambulance cases severely affected with lung irritants and with vesicants could have further treatment, such as the administration of oxygen and saline infusions, before being removed to the casualty clearing station. This unit should also have sub-units with decontamination centres to deal with cases occurring in the immediate vicinity and medical personnel that might have become contaminated. The gas-proofing of advanced dressing stations was impracticable, but if a main dressing station was situated in a building a room and operating theatre might be gas-proofed for the reception of the seriously wounded who could not wear respirators. At the casualty clearing station special wards might be set aside for the treatment of gas cases and oxygen administered simultaneously to several. Here also simple decontamination centres might be necessary to deal with cases occurring in the area of the station, but elaborate centres were probably not necessary. Major Hall did not deal with cases arising at the base, as measures for

these were exactly similar to those for civilian populations, and were given in the A.R.P. handbook.

Surgeon Captain E. ST. G. S. GOODWIN, R.N., said that accurate assessment of the severity of cases and their treatment at advanced posts would save the time of medical officers and also much hospital work. This applied especially to the sorting out of patients who only believed themselves to have been gassed. The speaker also emphasized the importance of the recognition of the delayed action of some lung-irritant gases. He advocated that where possible special wards should be made for gas cases, or at least that they should be segregated from the other patients for a time. Methods for dealing with gas cases occurring at sea were in principle similar to those clearly explained by Major Hall.

Colonel F. R. SANDFORD, R.A.M.C.T.A., considered that special anti-gas units should be formed to deal with the treatment and evacuation of gas casualties in forward areas. These could be mobile and be moved quickly to the scene of any gas attack. This would leave the field ambulances more free to deal with ordinary casualties.

Squadron Leader C. J. S. O'MALLEY, R.A.F., emphasized the importance of reassurance in dealing with gas cases. He agreed with Colonel Sandford that anti-gas units should be formed, as only in this way could adequate training be provided. He spoke of the difficulty of getting sufficient equipment for practical instruction in gas work in his own Service.

Major HALL, in reply, held that segregation was not called for, and that urgent treatment for wounds might require immediate admission to the acute surgical ward. He also considered that special anti-gas units, besides being impracticable owing to the rapid movement of troops, placed too much importance on the use of gas as a weapon of attack in modern warfare.

SECTION OF DISEASES OF CHILDREN

Wednesday, July 20

Breast Feeding

With Dr. LINDSAY A. DEY, vice-president (Sydney, N.S.W.), in the chair, Dr. J. C. SPENCE (Newcastle), in opening a discussion on the modern decline of breast feeding, said that in the eighteenth century there were few women who did not either feed their babies or hire a wet-nurse. Now, owing to the invention of the feeding bottle and the rubber teat, the cow was the "mother-substitute." With an infantile mortality rate twice as high as that in many other countries and about 20,000 preventable deaths each year among young infants it was important to combat the tendency—shown even in the preventive medicine service—to deprecate the value of breast feeding. Analysis of figures led to the conclusion that 20 to 30 per cent. of babies were artificially fed from birth in most big towns, and not more than one-third of the mothers of these towns were fully feeding their babies until the sixth month. Dr. Spence stressed the likelihood of late evil effects in the adult who had been artificially fed in infancy. The effect on the mother who cut short the reproductive cycle had also to be considered. It was essential, he continued, to study closely the different stages in the full establishment of lactation and the large variations in the quantity and quality of breast milk. Only 5 per cent. of mothers who did not succeed in feeding their infants failed because of physical abnormalities. The remainder either would not or did not know how to feed their infants on the breast. Ignorance and selfishness were important factors, and the fault often lay not so much in the mothers as in their advisers. Mismanagement was the chief cause of the failure to establish lactation. Better education of doctors and maternity nurses was among the most important ways of correcting this.

Dr. S. J. FOLLEY (National Institute for Research in Dairying), describing recent work on the endocrine control of lactation, said it was probably true that in the development of the human breast the corpus luteum hormone was necessary as well as the oestrogenic hormones of the ovary, and it was likely that mammary growth was induced indirectly by the action of oestrogens upon the pituitary causing this gland to secrete a "mammogenic" hormone. The prolactin of the anterior pituitary activated the adequately developed mammary gland. Crude extracts of this substance were more effective than refined preparations in initiating and maintaining lactation in hypophysectomized animals, and this was explicable on the lines that the integrity of the adrenal cortex was essential for lactation, the crude prolactin supplying this. Administration of thyroid gland to cows in declining lactation stimulated secretion of milk. It was possible that there was more than one "lactogenic" factor in the anterior pituitary.

Dr. AUDREY RUSSELL pointed out that clinical studies of the factors controlling lactation were complicated by the frequent spontaneous return of ovarian activity during lactation. Investigation of the lactation and menstrual histories of a large group of mothers in St. Pancras, where the figures for successful breast feeding seemed to be about 5 per cent. higher than those given by Dr. Spence for the North of England, indicated that there was a definite relation between amenorrhoea and successful lactation. Although failure of lactation was possibly due to endocrinal changes in less than 10 per cent. of women, in fully 50 per cent. the cause was mechanical inefficiency of suckling and emptying of the breast. The maintenance of this secretory reflex was most important, and Dr. Russell described an ingenious method of introducing a catheter into the baby's mouth to give complementary feeds at the same time as breast feeding was going on in cases of insufficient secretion in order to encourage good suckling despite the poorly filled breasts.

Dr. ETHEL CASSIE (Birmingham) said that among maternity and child welfare workers she had found the belief widespread that breast feeding was diminishing, that this was the result of maternal over-anxiety or because the mothers were going out to work, and that as artificial feeding was now so easy and safe this state of affairs did not matter. It was obvious that if such views were held advocacy of breast feeding could not always be as whole-hearted as many people desired. Dr. Cassie thought that the mother's diet, especially as regards first-class protein, was not sufficiently taken into account. Figures for Birmingham showed that while the babies were under the care of the midwife only 3 per cent. were artificially fed, and that by the time the health visitor took charge the figure had jumped to 12 per cent. Better management of breast feeding and careful instruction of the mothers was the main solution of the problem.

Dr. C. K. J. HAMILTON thought that proper management was the most important factor in success: it was a mistake to imagine that breast feeding was a natural process which could be left to maternal instinct, as was shown by the fact that breast feeding had been re-established successfully in fifty out of fifty-four cases. Failure began when the mother left her bed and went back to household duties, and it was important that mothers should be able to obtain prompt advice when there was any temporary diminution in secretion. Advice at the ante-natal clinics should be of great help. Test-feeding was most valuable in estimating the degree of failure and in helping in its correction.

The CHAIRMAN (Dr. Lindsay Dey) emphasized the great importance of breast feeding during the first three months of life. Postgraduate instruction of doctors in this matter was necessary. Dr. J. GREENWOOD WILSON (M.O.H., Cardiff) agreed that more knowledge of the advantages of breast feeding over bottle feeding was needed. Working back from a series of children leaving school, he had been unable to detect any difference between those who had been breast-fed and those who had been bottle-fed in infancy. He thought from personal experience that well-managed bottle feeding was easier to attain than well-managed breast feeding. Modern unrest and pleasure-seeking were perhaps the strongest influences against breast feeding. Dr. P. DE FREMERY (Holland) described the activity of the lactogenic and oestrogenic hormones in goats. Under the influence of oestrogenic substances the udder developed, percutaneous administration being best. Dr. A. G. WATKINS (Cardiff) thought that the

solution of the problems of lactation must begin with the adequate training of medical students and nurses. Public health workers in particular required more detailed practical instruction. Instruction of mothers during the ante-natal period was most essential. Dr. RUTH YOUNG (New Delhi) said that in India the majority of infants who survived the first month showed a steady increase in weight up to the seventh or eighth month of life. Yet the diet of many of the mothers was extremely defective according to usually accepted standards, often lacking entirely in first-class protein, frequently in fat, and sometimes in fresh vegetables. It was possible, therefore, that defective diet was not such an important cause of failure of breast feeding as had been suggested. Dr. MAVIS H. D. GUNTHER (Esher), speaking as a mother who had breast-fed her baby, pointed out that breast feeding entailed a big social sacrifice, and it was also far too much wrapped up with modesty. Mothers fed their babies in solitary state and lacked encouragement. Dr. DOROTHY E. MASON (Bethnal Green) described the over-feeding that resulted from rigid insistence on a four-hourly programme. In her district recently abscess of the breast had appeared as an important cause of failure of breast feeding, and might be due to non-emptying of the breasts. Dr. E. C. DAWSON (Derby) stressed the significance of psychological factors. The baby was most often brought to the general practitioner for fretfulness, and he found small doses of sedative drugs (bromide and chloral) most valuable as a first step in getting things right again.

Dr. F. M. B. ALLEN (President, Belfast) remarked that the problem had existed in ancient Rome. As a teacher he found it essential to be dogmatic with definite rules, especially paying attention to the difficulties and how they might be overcome.

BEIT MEMORIAL TRUST FOR MEDICAL RESEARCH

A meeting of the Trustees of the Beit Memorial Fellowships for Medical Research was held on July 13 for the election of Fellows and other business.

The total number of Fellowships held by full-time workers during the year 1937–8 was twenty-three. The number of candidates at the present election was higher than usual. Five applied from Canada and three from Australia. Fortunately reserve funds made it possible to award more Junior Fellowships than are ordinarily given each year, and the election of twelve new Junior Fellows brought the total of those elected since the beginning of the Trust in 1910 to exactly 200. A fresh edition has been printed this year of the Green Book, which summarizes briefly the after-careers of each Fellow and their present position in research.

Election of New Fellows

The following elections were made:

Senior Fellowship (value £700 a year).—David Ezra Green, M.Sc., Ph.D. To continue his research on the role of vitamin B_1 in the oxidation of pyruvic acid, and to study a new flavin-protein compound in milk (Institute of Biochemistry, Cambridge University).

Fourth Year Fellowship (value £500 a year).—Myer Head Salaman, M.A., M.D. To continue his research on vaccinia and animal pox viruses (Lister Institute of Preventive Medicine, London).

Junior Fellowships (normal value £400 a year).—Geoffrey Bourne, D.Sc. Biochemist, Commonwealth Advisory Council on Nutrition, Sydney, N.S.W., 1937. Proposed research: the significance of vitamin C in the endocrine system (Department of Human Anatomy, Oxford University). Andrew Lawrence Chute, B.A., M.D. Proposed research: experimental studies in metabolism of the brain (Department of Physiology, University College, London). Robert Oswald Lennard Curry, M.A., Ph.D. Proposed research: the physiology of speech disorders by photographic study of laryngeal movements (University College, London). James Frederick Danielli, B.Sc., Ph.D. Proposed research: the permeability of normal and denervated muscle to metabolic products and to drugs (Institute of Biochemistry, Cambridge University). John George Dewan, M.A., M.D. Proposed research: "insulin shock" treatment of schizophrenia by experimental studies of brain metabolism (Institute of Biochemistry, Cambridge University). Catherine Olding Hebb, M.A., Ph.D. Proposed research: the effect of thoracic sympathectomy on the activities of the lung (Department of Physiology, Edinburgh University). Bernhard Katz, M.D., Ph.D. Proposed research: electric excitation and transmission of impulses in nerve and muscle of animals (Department of Biophysics, University College, London). Jonas Henrik Kellgren, M.R.C.P., F.R.C.S. Proposed research: painful conditions of the limbs and back (Department of Clinical Research, University College Hospital). John James Duncan King, Ph.D., L.D.S. Proposed research: dental caries and parodontal disease (Medical School, Sheffield University). Hermann Lehmann, M.D., Ph.D. Proposed research: blood sugar in animals, and iron metabolism in plants (Institute of Biochemistry, Cambridge University). Walter John O'Connor, M.B., B.S. Proposed research: effect of strophanthin on the oxygen consumption of the heart (Laboratory of Pharmacology, Cambridge University). Harold Scarborough, M.B., Ch.B. Proposed research: mode of destruction of vitamin C in the human body (Clinical and Chemical Laboratories, Royal Infirmary, Edinburgh).

All correspondence of Fellows and candidates should be addressed to Professor T. R. Elliott, M.D., F.R.S., honorary secretary, Beit Memorial Fellowships, University College Hospital Medical School, University Street, W.C.1.

THE CANCER CAMPAIGN

Viscount Hailsham presided at the sixty-seventh quarterly meeting of the Grand Council of the British Empire Cancer Campaign held at 11, Grosvenor Crescent on July 11. On the recommendations of various committees the following grants were made totalling £3,715, in addition to the sum of approximately £45,000 which has already been approved in grants for the calendar year 1938. £1,100 towards the expenses of the work of the Radium Beam Therapy Research; £750 for the expenses of the research being carried out by Mr. F. C. Pybus at Newcastle; £300 to Dr. P. R. Peacock, at the Glasgow Royal Cancer Hospital, for the salary of a whole-time assistant; £495 for the salary of the physicist at the Strangeways Research Laboratory, Cambridge; £750 for the expenses of certain investigations being carried out under the direction of Dr. P. M. F. Bishop and Mr. H. J. B. Atkins at Guy's Hospital; £270 to Dr. John Bruce, at Edinburgh University, for part-time investigations; and £50 for a replacement in apparatus at the Strangeways Research Laboratory.

The Council decided that the fifth biennial informal conference of cancer research workers should be convened by the Campaign in the spring of 1939. It was gratified to learn that King Edward's Hospital Fund for London had intimated its willingness to co-operate with the Campaign in its newly inaugurated scheme for the co-ordination of clinical cancer research by stimulating the establishment of efficient follow-up systems for cancer patients in the hospitals.

A selection committee is considering applications for the post of full-time Medical Secretary and Registrar. When appointed the successful candidate will proceed to the United States and other centres to study the latest methods of dealing with statistical information. The new department of the Campaign will deal with the records of approximately 17,000 new cases of cancer annually, supplied by over 100 hospitals in the London metropolitan area.

Grand Council approved of the reappointment of Dr. G. Cranston Fairchild as the William Morris Research Fellow in Radiology at Mount Vernon Hospital for a further period of three years, subject to an annual recommendation from the Council of the Radium Institute and the Mount Vernon Hospital. This Fellowship was created by the Campaign in 1931 at the request of Lord Nuffield, who provided a sum of £25,000 for the purpose of promoting research work and study concerning the treatment and cure of cancer by radiology.

Local News

ENGLAND AND WALES

National Hospital: New Wards and Research Department

The new wing of the National Hospital for Diseases of the Nervous System, perhaps better known as Queen Square Hospital, London, which was opened by Queen Mary on July 19, increases the accommodation of the hospital by 43 beds and provides two entire floors and a basement for research work. The building adjoins the old hospital, overlooking the square, and is severely simple in its lines, with no ornamental detail.

The two highest of the seven floors are devoted to single-bed wards, where patients can have the privacy that is often so desirable in an institution for this class of case. Each ward has one of its walls consisting almost entirely of window, which can be opened out upon the gardens and trees of the square below. The fifth floor contains two operating theatres, with a large sterilizing room and a room for *x*-ray diagnosis. Students' galleries are built in the theatres in such a way that their occupants can obtain a close view of an operation from the best possible angle, although separated from the main theatre by sloping glass screens. Below this theatre floor there are three floors occupied by four-bed wards, two of them surgical and one medical, and here again one of the walls is glazed and can be opened out to give the ward the effect of a balcony. The first floor, ground floor, and basement are given over to the purposes of laboratory research and teaching. The post-mortem department is in the basement, with two small chapels attached, one for Jewish rites. On the ground floor there is a large lecture theatre and two sets of consulting rooms, where the physicians and surgeons of the hospital can see private patients, and all the remainder of the space on these floors, apart from a library and a refectory, is occupied by laboratories. The furnishing of these laboratories has had special attention, and in the search for ideas some of the best-equipped laboratories in various parts of the world have been visited, including the famous physical chemistry institute of Upsala. The complicated system of electrical and mechanical services has been installed in such a way that in the finished building they obtrude themselves to the least possible extent. All the benches are standardized and movable, and can be placed anywhere around the walls or in the centre of the room with the certainty that the necessary services will be available at any point. On each landing there is a clock which dials the number of any member of the staff who is wanted, and the number is dialled fifteen times in succession until the truant is traced. Electrically controlled blinds close the windows when a button is pressed. In the private wards the lights can be dimmed from outside without the necessity of entering and disturbing the patient. There are innumerable contrivances of this kind. Another amenity is the provision of waiting rooms on each floor for the friends of patients.

The new building, which is not yet occupied—the shortage of nurses here as in other new hospitals is one cause of delay—is by no means the end of present developments at Queen Square. It is hoped to build a new nurses' hostel, for which a neighbouring site has been acquired, and to reconstruct the out-patient department. The new wing, especially the research department, has been rendered necessary by the fame of the research work in neurological medicine and surgery done at this hospital. The accommodation for research became inadequate, and in 1935 the Rockefeller Trust gave £60,000 towards the building on condition that another £60,000 was raised. The Trust gave a like sum to be invested for the endowment of research. The second £60,000 was more than secured from three sources—£29,000 from Lord Nuffield, £11,600 in response to a broadcast appeal, and £20,000 from picture-house collections. In addition there have been many other large gifts, including £1,000 from the Corporation of the City—recalling the fact that the hospital itself was started as the result of a Mansion House meeting—and the building fund has now reached £158,000.

Voluntary Hospitals of Sheffield

The Duchess of Gloucester visited Sheffield last week to inaugurate an appeal for £1,000,000 for the city's voluntary hospitals. During the day she attended a meeting at the City Hall; opened a new ward at the Children's Hospital, for the treatment of children under 1 year suffering from dietetic disorders; and laid the foundation-stone of the new maternity block at the Jessop Hospital. It was announced by Mr. W. R. S. Stephenson, chairman of the executive committee of the appeal, that two-thirds of the sum required would be found by employees and employers in the district, who already contributed to the maintenance of the hospitals through the "penny-in-the-pound" scheme. The remaining third would, it was hoped, be subscribed by the general public and public bodies. The aim of the scheme of reorganization of the Sheffield hospitals was to centralize all specialized work. At the Jessop Hospital Mr. James Henderson, chairman of the board of management, explained that additional maternity beds were the most urgent of Sheffield's hospital needs, and the financing of the new block at that institution would be the first call on the £1,000,000 appeal fund.

A Convalescent Home in Kent

The opening of a convalescent home near Tunbridge Wells by Sir Kingsley Wood on July 1 marks the recognition by the Kent County Council of the need for restoring the individual to fuller health than is afforded by actual hospital treatment. The establishment of this home has been made possible through the generosity of Mrs. Vera Salomons, who has presented the house and grounds by deed of gift. The house was formerly the home of her family, and is being named the "David Salomons House" in memory of the father of the donor. It is a spacious country house standing in about thirty-five acres of beautifully wooded grounds, and has been adapted by the County Council to provide accommodation for seventy female patients between the ages of 15 and 45. In view of the importance of diet during convalescence a cook-dietitian has been appointed, and every effort has been made to depart from the hospital atmosphere and to create restful and pleasing surroundings. There are adequate facilities for rest and recreation both indoors and out, and there is a well-equipped theatre attached to the house for the entertainment of the patients. Until recently convalescent treatment has only been possible through the agency of voluntary bodies or by the private arrangements of the patient, and the fact that the Kent County Council has provided such treatment as part of its public health service is a noteworthy advance in the care of the sick. The decision to use the home for female patients in the 15–45 age group is important. While the average man after his discharge from hospital has some time on sick benefit before returning to work, the housewife, who will be represented by many patients in this group, often goes straight from hospital to full and arduous work in the home.

Notification of Measles and Whooping-cough in London

The Minister of Health on July 15 inserted a notice in the *London Gazette* advertising regulations which it is proposed shall come into operation on October 1 next for the compulsory notification by medical practitioners of all cases of measles and whooping-cough occurring in the Administrative County of London, except in the following cases: (1) If a previous case of measles or whooping-cough has occurred in the house and has been notified within the preceding period of two months. (2)

If the case is being treated in a hospital for infectious diseases. (3) Where the patient has been admitted into a hospital belonging to the London County Council. Regulations which are already in operation in certain Metropolitan Boroughs for the notification of one or both of these diseases will be rescinded by the new regulations. Measles and whooping-cough are notifiable only in those places for which special regulations of this kind have been made. Reference to this matter was made in our Epidemiological Notes last week.

Cost of Medical Care to Local Authorities

The Minister of Health has now issued Part I of the Costing Returns for the year ending March 31, 1937 (H.M. Stationery Office, 1s. 3d.). The returns relate to all the principal institutions (other than infectious disease hospitals) for the treatment of persons in need of medical or surgical care and attention which are administered or utilized by local authorities in England and Wales. The institutions for which particulars are given comprise Poor Law hospitals, general hospitals administered by local authorities, sanatoria and other residential institutions for the treatment of tuberculosis and maternity homes and hospitals. The main object of this publication is to assist local authorities in the economical administration of the institutions under their control by enabling each authority to make comparisons between the average costs of their own institutions and of the comparable institutions belonging to other authorities. Careful investigation into the causes of divergencies in unit costs is a valuable method of securing economies and improvements in methods of administration.

Board of Education Report

The annual report of the Board of Education for 1937 (Cmd. 5776, H.M. Stationery Office, 3s. 6d.) covers the calendar year, and is, as usual, combined with the Board's statistical tables, most of which relate to the period ending in March or July. The introduction to the report mentions some of the outstanding events of the year. One was the introduction of the Government scheme for the development and extension of opportunities for recreation and physical education; a fuller account of this is given in Chapter I. The Board's total estimate for the year 1937–8 was £49,500,000—nearly £1,500,000 more than that for the previous year. Most of this increase was due to larger expenditure by local authorities on elementary and higher education. Substantial progress was made in all branches of educational activity, including the School Medical Service, and in particular the report comments on the more rapid growth in the provision of nursery schools. Widespread attention has been given by local authorities to the institution of preventive and instructional measures designed to promote the safety of children on the roads. The results of an inquiry into children's homework and the conclusions of the Board on the subject were published in 1937. The Board again calls attention to the importance of the appointment of organizers of physical education. At the beginning of 1936, out of 316 local education authorities, only 124 employed these organizers. By the end of last year the number had increased to 232 authorities. Steps were taken to meet the need for an increased supply of teachers capable of giving instruction in physical training. The Board explains in some detail the circumstances in which the Government scheme for the development of opportunities for recreation and physical training was launched. During the past quarter of a century educational practice has been steadily moving from a narrow interpretation of formal training to the wider conception of developing the individual. A similar change has transformed physical education in the schools from a system of formal drill into one of free exercise, embracing not only gymnastics and physical exercises but games, swimming, and all sorts of outdoor activities. This wider view of the educational process was recognized in the Education Act of 1918, which gave local authorities power to supplement and reinforce the instruction given in the schools by providing opportunities of social and physical training for school children and young persons. But the opportunities for young people to indulge these interests have in the past been incomplete. These considerations moved the Government, spurred on by the British Medical Association Report, to set up the National Fitness Council, and, through the Physical Training and Recreation Act, 1937, to confer on local authorities new and extended powers for providing gymnasiums, playing fields, camps, community centres, swimming baths, and the like. The report gives some account of the work which the National Fitness Council has already accomplished. From the section on school meals and milk it appears that only about half the children in public elementary schools take advantage of cheap milk. The number of authorities providing school meals or milk during the year ending March 31, 1937, was 247, compared with 235 in the preceding year; by the end of the calendar year 1937, 259 authorities were providing meals or milk. The Board points out that the Advisory Committee on Nutrition recommended that children should take from one to two pints of milk a day, and it regrets that parents do not appreciate more fully the opportunity provided by the milk-in-schools scheme of obtaining so valuable a food for their children at half-price.

Preston Hall, Maidstone

Two matters call for special notice in the report of the medical director of British Legion Village, Preston Hall, for the two years ended September 30, 1937. The first concerns the future of this settlement. It has been obvious for some time that Preston Hall could not continue as a centre for the treatment of ex-Service men only. Indeed, 38 per cent. of those now under treatment are not ex-Service men. The council of management has therefore recommended to the National Executive Council that the British Legion should continue to be the owners of Preston Hall and be responsible for its future, and that a separate appeal should be made on behalf of Preston Hall, "with the clear understanding that the money would be required to carry on a national work for the whole of the community, and not for ex-Service men only." The second matter is the "arrested-cases scheme." A number of patients in whom the disease has been arrested and who are still working in Preston Hall industries are now resident not in the Village Settlement itself but in houses in the near neighbourhood. These houses are being built by private enterprise, and are purchased or rented, sometimes with the assistance of the British Legion. In addition, twenty-four settlers considered to be within the category of "arrested cases" have left the Village and are working elsewhere in England. It is emphasized that no pressure of any kind is brought to bear on these men to move, that no relapses have been reported in this group, and that the introduction of this scheme has had no effect on the number of fresh applications for admission to the settlement.

London Emergency Bed Service

The Voluntary Hospitals Emergency Bed Service has now completed its fifth week of working, and in spite of having taken deliberate steps to avoid any rush of calls when it was opened it has already dealt with well over 500 cases. The actual cases offered have varied very considerably, and, though all types of medical and surgical emergencies have been dealt with, the average length of time between receiving a message from a doctor and obtaining admission for his patient is still in the neighbourhood of five minutes. It is possible, if all the circumstances are favourable, to complete the arrangements for the admission of a patient within three minutes, as was done in the case of a doctor who telephoned at 1.17 p.m. asking for admission for a patient suffering from acute appendicitis; by 1.18 p.m. the Miller Hospital had agreed

to take the case; at 1.19 p.m. an ambulance had been ordered; and at 1.20 p.m. the doctor was informed that an ambulance would call for his patient. Many doctors are apparently still reluctant to use the Service, as is evidenced by the fact that on several occasions doctors who have made use of it have said that they had already tried three hospitals, all of which had recommended them to ring Metropolitan 8781. In one instance a doctor said that he had spent over an hour trying to get admission for his patient, and when he finally rang the Service admission was obtained in seven minutes. The Service is now capable of dealing with any call that may be made upon it, and it is no longer necessary for doctors to hold back for fear of overwhelming an untried institution.

The Case for Cremation

A conference, organized jointly by the Cremation Society, of which he is president, and the Federation of British Cremation Authorities, was opened by Lord Horder on July 22 at Balliol College, Oxford. Lord Horder said that earth burial, which had long been a luxury, was to-day a social crime. On the score of lack of reverence, this at least could be said for cremation—that it spared the irreverence of exhumation, which was the lot of so many thousands of bodies, and it spared also the neglect of graves so evident in many cemeteries. Moreover, the crematorium chapel was more comfortable than an open graveside and spared much to mourners, who often attended funerals in an impaired state of health, due to the anxiety of the period through which they had passed. Cremation, by reason of its system of certification enforced by the law, both prevented and detected crime. Death certificates signed by medical men who had not examined the bodies after death were impossible in the case of cremation, for which two medical certificates were demanded, and these must be completed to the satisfaction of a medical referee before cremation could take place. Leeds City Council was represented at the conference, and this week Alderman Masser has opened a new crematorium at Cottingley Hall. Dr. J. Johnstone Jervis, medical officer of health for Leeds, in a handbook describing the Cottingley Hall Crematorium, writes: "If anyone were to ask me what, in my opinion, was the ideal method of disposing of the dead I would unhesitatingly reply, cremation. The reasons for this answer are, first, that it is the most hygienic method; secondly, that it is the most expeditious method; and, thirdly, that it is the method best suited to the times in which we live. Who will say that a graveyard in the midst of a thickly populated city, or even in a suburban area, is a benefit to the people's health?"

SCOTLAND

Edinburgh University Graduation

At the medical graduation of Edinburgh University on July 20 Lord Tweedsmuir was installed as Chancellor of the University in succession to the late Sir James Barrie. There were thirteen recipients of the honorary degree of LL.D., including the Governors-General of Canada, India, and Australia, and two Cabinet Ministers, one of whom was Dr. Walter Elliot, the Minister of Health. Lord Tweedsmuir, in his address, said that a university was not a mere wicket-gate which once passed was no more thought of; it should influence every stage of life. It had two plain duties—to transmit knowledge and to advance knowledge—and both required equal emphasis. General culture was of little value to a young man if he was going to starve, but on the other hand if they had only what had been called the "service station" conception of a university they would have men entering a profession without having been taught to think. The purpose therefore of the university should be to combine humanism with technique. The other primary function of a university was to pursue truth by research, experiment, and speculation. Our forefathers based all learning on the study of philosophy, and Lord Tweedsmuir suggested that they should return to an insistence upon the liberty of the mind. If they could give to the youth minds accustomed to think and inspired with a reverence for thought, and at the same time give them the perspective created by understanding our long human story, they would be endowed with confidence and hope. It was often said that modern youth lacked the enterprise, stamina, and fortitude of their fathers, but he believed this to be untrue. Those who to-day entered the church, medicine, law, or commerce found the technique of these professions more elaborate than it was in their fathers' day; that delicate structure called civilization had to be maintained in a world full of destructive forces. The mechanism of society to-day had become so intricate that it was far more exposed to disaster than the simpler mechanism of earlier days, and they could only preserve the standards by the constant exertion of intelligence. The Chancellor afterwards conferred the M.D. degree upon sixteen graduates and those of M.B., Ch.B. upon 163 graduands.

Principal of the Veterinary College

The Governors of the Royal (Dick) Veterinary College, Edinburgh, have appointed Colonel Sir Arthur Olver, C.B., C.M.G., F.R.C.V.S., to be principal of this institution in succession to the late Dr. O. Charnock Bradley. Sir Arthur Olver, who is 62, recently retired from the post of Animal Husbandry Expert to the Imperial Council of Agricultural Research in India. In 1908 he was appointed Assistant Director-General of Army Veterinary Services, and for his work in the war he was awarded the C.M.G. and C.B. He was instrumental in introducing many improvements in animal husbandry and veterinary education; among them were dairy farms in each of the five provincial veterinary colleges of India. He also drew up the scheme for a higher-grade veterinary college in India, in which he laid special stress upon the subjects of animal nutrition and animal genetics.

Conference on Health Education

At a conference organized by the Department of Health for Scotland in the Empire Exhibition, Glasgow, on July 19, Mr. H. J. Scrymgeour Wedderburn, Parliamentary Under-Secretary of State for Scotland, who presided, said the future of Scotland depended on the health of the young people who were leaving school at the rate of 90,000 a year. Mr. Joseph Westwood, M.P., suggested that the three routine medical inspections during school life could be cut down to two, and that medical staffs might thus be freed for work among pre-school children. Medical services should be provided for the family in the same way as they were for the insured worker. The law should be amended so that local authorities might provide meals for school children as a preventive measure; a good midday meal would prevent much of the debility which they were now seeking to remedy. The medical profession must work in the closest harmony with the local municipal services, and the State must give local authorities the necessary financial assistance. Mrs. Walter Elliot, speaking of the young citizen, pointed out that there was really no control after boys and girls left school; there were many voluntary organizations to cater for them, but these did not attract more than one in three of the juvenile population. When people were removed from the slums to charming new houses their social interests and leisure time should also be catered for. Sir John Boyd Orr considered that the physique of the youth of to-day was better than that of his father's generation, and he believed that twenty years hence there would be

still further improvement. The extension of the school-leaving age by another year would be a great benefit in providing another year's discipline, and much could be done in the last two years of school to impress upon the child that its future lay in its own hands. A healthy physique and character were of more importance for success in life than a good deal of money or a great deal of academic learning. The youth of to-day was not so much impressed with the necessity for getting on in life as was the youth of twenty-five or thirty years ago, but he was beginning to realize that he was a debtor to the community, and that he had to make some contribution for all he had received from it. The chairman said that Scotland was a small nation with a population under five millions. The fall in the birth rate had raised many issues of high policy in the State, and one problem was to secure that those who were born were equipped to lead a full and useful life. The conference had brought home to them that the health organization of Scotland was doing a great work, although it was not perfect and was not sufficiently used. They were now spending £20,000,000 in Scotland on health services of every kind, but he doubted whether they were getting as high a return for it as they ought.

Correspondence

Bragg-Paul Pulsator

SIR,—On July 8 an S O S message was sent out by the British Broadcasting Corporation asking for a Bragg-Paul pulsator, which was required for a case of respiratory paralysis at the Ipswich Hospital. A pulsator was at once sent off from the London Hospital, but did not arrive in time. In a recent article (*British Medical Journal*, June 4, p. 1206) Dr. C. J. McSweeney, of the Cork Street Hospital in Dublin, described the use of the pulsator, which he said had enabled him to tide over the period of complete paralysis of the thorax muscles, and to save life, in twenty-six cases. Quite recently a pulsator was required for a serious case in Belfast; fortunately, a spare pulsator had just arrived at Dr. McSweeney's hospital, and was sent off at once. It was hurried through the Border Customs, and arrived in time to be applied successfully. It is hoped that by this time the child is out of danger. It seems obvious that pulsators should be kept in readiness at known centres so as to be available for immediate use by qualified practitioners.

The particular form of apparatus which goes by the name of the Bragg-Paul pulsator had its origin in an attempt to give relief to a friend of mine and to his family. My friend suffered from an extensive paralysis; he was quite unable to breathe. For months he was kept alive by nurses and relations, who used a simple method resembling that which is prescribed for cases of apparent drowning. I thought that it might be possible to reduce the labour and inconvenience, and I arranged that a football bladder should be bound upon my friend's chest, connected with a similar bladder fixed between two hinged boards. By closing and opening the boards the chest was alternately compressed and allowed to recover by its natural elasticity. It was very much a home-made apparatus, but it worked and was in use for a long time. I then asked my friend Mr. Robert W. Paul to improve the design and, if possible, to draw power for working it from the water mains; electricity was not then available. This he did in a very ingenious manner. For three years or so my friend's breathing was accomplished entirely by the pulsators we made. He lay in bed all the time. The application of the apparatus caused him no inconvenience, nor did it interfere with his nursing. The tube connecting the pulsating machine with the hollow bandage which had now replaced the football bladder was hidden by the coverings of the bed, and there was no evidence of anything unusual except the quiet click-clack of the pulsator in another part of the room.

Mr. Paul then designed the apparatus for use on the electric circuit, and has recently improved it in many ways, which have been suggested during its use in hospitals. Among other changes, the electrically driven gearing is enclosed in an oil bath, and the new pulsator is practically noiseless. Several pulsators have been made by Mr. Paul, or under his direction, because he is naturally interested in perfecting the design. I am sure that Mr. Paul (69, Addison Road, London, W.14) will gladly give advice to any person or institution proposing to procure one of the new pulsators. To avoid misunderstanding, I would add that I am not financially interested in the apparatus.—I am, etc.,

The Royal Institution, London, W.1, July 21. W. H. BRAGG.

Abortion and the Law

SIR,—There has been so much discussion in the lay press on the different aspects of my recent prosecution that, for the first time, I should like to make some points clear to my fellow members of the profession through your columns.

Before this case was brought before the courts it is a fact that, despite what has been said to the contrary, the question of even therapeutic abortion has been a source of great anxiety to doctors, chiefly those in general practice. Uncertainty exists because it is so difficult to define what constitutes an indication for the operation.

We all know that there are many vague and almost indefinable conditions which, as serious danger to health though not to life, are much more important than many straight cases of heart or chest disease. The latter often suffer little or no real depreciation of health, but they carry the label of a named disease, which is readily accepted by laymen: the former class, by reason of the lack of concise clinical definition, may not be readily convincing cases in any subsequent legal investigation. These patients form the real problem.

It is comparatively simple for the consultant obstetrician, behind his defence of special knowledge and experience, particularly in large centres, to induce abortion, but it is a very different problem for the general practitioner in a small town or country district. Between the pressure exerted on him by the patient and her husband on the one hand, and the justifiable fear of misinterpretation of his action by gossips, or even the police, on the other, his position can be very difficult.

For years I have been impressed by this difficulty and decided to bring forward a test case, when the opportunity arrived, in which there would be no real danger to *life* (except suicide, which is occasionally committed by girl patients) but in which one might very strongly suspect great danger to health. I was also concerned to establish in the eyes of the law that mental health was just as important as physical health, and in certain cases perhaps even more so. This does not mean that I regard abortion as necessary in most cases of insanity. I am informed by my colleagues practising psychiatry that the operation plays little or no part as a treatment or prophylaxis of most forms of insanity. I also wish to state once again that I did not bring the case forward as an attempt to alter the law by direct action, but to obtain a further definition of the present law.

The Attorney-General admitted that abortion is legally recognized when life is in danger. Now we know that it is also admitted where there is *serious* danger to health. Much emphasis must be placed on the italicized word "*serious*." I would not have it be believed that I have worked for a loose interpretation of a law which I have observed myself, perhaps too rigidly. Nevertheless, I cannot help feeling that the majority of the profession would feel that they are on safer ground if the precedent, just established, were incorporated in a new Act, passed in days of much more knowledge of medicine, surgery, and psychology than was available in 1861.—I am, etc.,

London, W.1, July 25. ALECK BOURNE.

SIR,—We read in the newspapers here that Mr. Aleck Bourne is being prosecuted in London on account of the performance of an "illegal" operation. From what one has seen it would appear that the operation was the production of abortion in a girl who had become pregnant through rape. It would also appear as though he had done this openly, perhaps as a test case. If this is so he surely deserves not only the thanks of his medical colleagues but also the gratitude of the public, who may at any time be victims of such assaults. No doubt he will have the utmost support from the great body of his colleagues at home.

The subject has, of course, received a good deal of publicity in your columns of late, and different views have been expressed. I think it was recently reported that, during a discussion on the subject, Mr. Justice Humphreys had expressed the opinion that a doctor, feeling he should take this course, would be advised to collect his colleagues about him, thus being open in the matter, and that he then would have little to fear from the law. It would appear that this is what has here been done, and, if so, it is to be hoped that the law will play its part fairly and honourably.

Why, after all, the inconsistency? If it is technically illegal to procure abortion, then why has it been winked at where the reason was the preservation of health, if an attempt is to be made to enforce it in cases where the motive is to relieve the patient and her relatives of what is to them a very real misery? It has long been realized by many, and prominent among them the late Mr. Justice McCardie, that it was high time that such abortions were legalized, and now surely it is more than time that this should receive official recognition. Doubtless a good deal will appear in the *Journal* regarding this case from better-informed and abler pens than mine, and members of the profession will follow events with interest and feeling.—I am, etc.,

Natal, S. Africa, July 3. DAVID T. MACLAY, M.B.

The Unconscious Mind and Medical Practice

SIR,—In the *Journal* of July 9 (p. 93) the late Dr. Harry Campbell confesses to a difficulty in understanding what the unconscious of the psycho-analysts may be, and blames them for not giving a precise definition of the term. Speaking not as a psycho-analyst but as a medical man interested in psychological medicine, I share his difficulty, but recognize the impossibility of defining one unknown quantity in terms of another. Like Dr. Campbell, I do not wish to initiate a useless discussion on terms, and I have found the psycho-analyst's view of the unconscious quite clearly put forward by Galton many years before psycho-analysis had become the little-understood but freely discussed and much misused term that it is to-day. True, Galton explains it by analogy only, but perhaps this is as far as it is possible to go. Interested readers should refer to the Everyman's Library edition of *Inquiries into Human Faculty*, wherein is a great deal of extremely stimulating material, of which the section on "psychometric experiments" has most bearing on the present question. On page 131 Galton writes:

"The furniture of a man's mind consists of his recollections and the bonds that unite them. As all this is the fruit of experience, it must differ greatly in different minds according to their individual experiences. . . .

"When I am engaged in trying to think anything out, the process of doing so appears to me to be thus: The ideas that lie at any moment within my full consciousness seem to attract of their own accord the most appropriate out of a number of other ideas that are lying close at hand, but imperfectly within the range of my consciousness. There seems to be a presence chamber in my mind where a full consciousness holds court, and where two or three ideas are at the same time in audience, and an antechamber full of more or less allied ideas which is situated just beyond the full ken of consciousness. Out of this antechamber the ideas most nearly allied to those in the presence chamber appear to be summoned in a mechanically logical way, and to have their turn of audience."

The passage is too long to quote further, but it is of interest to note that it was written in 1883.—I am, etc.,

Sheffield, July 20. E. FRETSON SKINNER.

The Final M.B., B.S.Lond.

SIR,—Sir Ernest Graham-Little's letter in your issue of July 16 (p. 153) seems to suggest that there is now some cause for congratulation at the recent decision of the Royal Colleges *not* to co-operate with the University of London in regard to the final medical examinations. With all due respect to Sir Ernest, with whom I have for many years maintained the friendliest relationship, may I, as a general practitioner who is a graduate of London University and a holder of the Conjoint diplomas as well, but who has also maintained close touch with his university ever since graduating, on Convocation and as a member of the Standing Committee since 1927, be allowed to express a contrary opinion? I would like everyone to take the broadest possible view of the whole matter.

Ninety per cent. of medical men enter into general practice—that is, into medicine in the widest sense. When we begin a course of study at one of the London medical schools we do so with one object in view—namely, to get qualified, to get upon the *Medical Register*, to be able to earn a living in the field which we have chosen, and to be able to attend people in sickness and distress. Once engaged in general practice the question of what degrees or diplomas we hold plays no part in the scheme of things at all. Only one thing counts—work—and for that we require not degrees but common sense, energy, keenness, concentration, and an insight into the patient's mind. If further help, specialist skill, or additional advice are required we must know where to get them, whom to call in, and the right moment to do so. We who hold the M.B., B.S.Lond. degrees are not conscious of superiority over our colleagues who possess merely the Conjoint diplomas. Not only the public but the profession itself pays no more deference to the M.B., B.S.Lond. than to the Conjoint diplomate. Many London medical graduates are anything but a success in practice, whereas many a Conjoint man has the biggest and most successful practice in the whole district. We must look

these facts in the face and see them as they are, and not just as we would like them to be. It is popularity that counts in general practice, not the possession of degrees.

Since 90 per cent. of our medical students are engaged primarily in securing a registrable qualification in order to be allowed to practise, is it not fantastic that twenty men in one class should all end up with different degrees and diplomas after the same course of study? Is not the greater plea not merely for one common final examination in London but for one State final examination for everyone? After that, specialistic and higher degrees and diplomas would still be available in medicine, surgery, midwifery and gynaecology, laryngology, ophthalmology, and so on.

I maintain that every medical man, after five to six years' study, *should be a graduate*, and should exercise a graduate's Parliamentary vote. It is not really difficult to arrange a final medical examination in London which at once gives the M.R.C.S., L.R.C.P. diplomas and *ipso facto* passes three-quarters of the final London M.B., B.S., leaving only one-quarter, such as more advanced papers in medicine, etc., to be completed to get the degrees.—I am, etc.,

CHARLES A. H. FRANKLYN,
M.D., B.S., M.R.C.S., L.R.C.P.

Lincoln, July 17.

X-Ray Screening Stand for General Practice

SIR,—I should like to congratulate Dr. Douglas Gordon on his description of a screening stand suitable for fluoroscopic examination of the chest and abdomen (*Journal*, July 2, p. 21). I feel, however, that his description of the simplicity of this method of examination may be misleading, as it is by no means an accurate method of assisting in diagnosis; in fact it may easily prove to be the reverse. Early lesions in the lungs are often not visualized by screen examinations, and when of sufficient density or translucency to reveal themselves can seldom be differentiated. Such a screen examination is more profitably made after an examination of the preliminary chest radiograph. A screen examination of the abdomen without utilizing an opaque meal is only likely to give useful information in cases where the presence of a foreign body is suspected. In such cases a negative finding, of necessity, would have to be verified by radiography.

I trust that none of these criticisms will deter any medical practitioner from making the fullest use of radiology in his practice, while realizing the limitations of fluoroscopy *per se*. In congratulating Dr. Gordon on the design of his stand, which should prevent any recurrence of "the sudden attack of alopecia," one cannot help remembering that it is the patient who receives most of the rays. A filter of 1/2 mm. of aluminium should be helpful.—I am, etc.,

London, W.1, July 19. J. V. SPARKS.

Prophylaxis of Measles

SIR,—During the months of May and June we have had the usual administrative difficulties in the children's wards of the Royal Northern Infirmary at Inverness on account of measles. In our efforts to immunize not yet infected children, Lederle's immune globulin was used exactly as described by Dr. T. N. Parish (*Journal*, July 9, p. 65). The results were disappointing, as in every case in due course measles developed. All the remedy seemed to do was perhaps to limit the severity of the clinical picture and to delay the incubation period—at much expense to a voluntary hospital. I am further prompted to write this letter as I have just read the following in a Northern paper under the heading "Boy loses eye after measles: Gets £3,500 damages."

"Three-year-old Joseph Henry West, of Dickens Street, Miles Platting, Manchester, received £3,500 and costs at Manchester Assizes yesterday for the loss of his right eye after an attack of measles. Through his father he sued the Manchester Corporation for damages for personal injuries.

"Mr. G. J. Lynskey, K.C., for the boy, said that he had had an attack of measles, and following this an attack of scarlet fever, after which he was admitted to Monsall Hospital, Manchester. While in hospital he had another attack of measles, as a result of which his eyes became septic and the right one had to be removed. The claim on behalf of the boy, Mr. Lynskey contended, was that he was not given anti-measles serum and that he was exposed, while suffering from scarlet fever, to risk of infection from another child who was a suspected case of measles."

—I am, etc.,

W. LEONARD FORSYTH, M.D.
Med. Supt. Royal Northern Infirmary, Inverness.
(Emeritus Professor of Bacteriology, University of Cairo.)

Inverness, July 12.

Eventration of the Diaphragm

SIR,—In the *Journal* of April 30 (p. 948) there is a report by Mr. A. L. McFarlane and Dr. W. N. Dickenson of a case of hernia through the diaphragm. The case reported seems to be almost identical with one which I saw some years ago, and which was fully described in the *Australian and New Zealand Journal of Surgery* of October, 1932. My patient was a schoolgirl aged 14 who had an ovarian cyst. Operation showed a complete absence from the general abdominal cavity of small intestine, ascending colon, and half the transverse colon; and subsequent *x*-ray examination revealed these organs lying above the liver within the thoracic cavity. The diaphragm, greatly elevated, seemed to be above the intestines. She had had no other disability, and took an active part in her school games. Such a condition was described by Petit in 1774, and later Cruveilhier also gave account of it. He gave to the condition the name "eventration of the diaphragm," under which name some half-dozen cases have been reported in the *American Journal of Roentgenology*.—I am, etc.,

Christchurch, New Zealand, June 17. P. STANLEY FOSTER.

Anaemia and the Gastro-intestinal Tract

SIR,—Dr. Janet Vaughan in her recent article on anaemia and the gastro-intestinal tract (*Journal*, July 9, p. 57) states: "There is no evidence that intestinal abnormalities affect the utilization of vitamin C." In actual fact, however, there is abundant evidence to the contrary. It is becoming increasingly evident that deficiency states may occur even when individuals are taking diets adequately supplied with vitamins. That vitamin C may not be utilized although taken in adequate quantities is suggested by several interesting observations.

1. Scorbutic-like syndromes may develop in individuals taking three oranges daily (Wright and Lilienfeld, 1936).

2. Scorbutic patients who have failed to respond to fruit juices or ascorbic acid orally do so when the latter is administered intravenously (Birch *et al.*, 1933).

3. Wright and Lilienfeld (1936) have actually induced relapses in such patients by placing them on a regimen of vitamin C orally, then cured the relapses by the parenteral exhibition of the vitamin.

4. Mahlo and Multi (1936) believe from their experiments that there is a failure of absorption of vitamin C in patients

with gastro-enteritis owing to the presence of a specific peroxidase which destroys the vitamin in the stomach.

5. Stepp (1936), Schroeder (1936), and Einhauser (1936) claim that certain bacteria, especially *B. coli communis*, may cause destruction of the vitamin. Marin (1936) reports that orally administered vitamin failed to cure a case of scurvy in which *B. coli* and paratyphoid B organisms were present in the intestinal tract.

In the same way that "anaemia is often found in association with various disturbances of intestinal function," so are deficiency states commonly associated with gastro-intestinal disease. Mackie and Pound (1935), for example, found evidence of deficiency states in 63 per cent. of seventy-five cases of chronic ulcerative colitis, although a history of a defective dietary was seldom elicited.—I am, etc.,

BENJAMIN PORTNOY, M.D.

Department of Clinical Investigations and Research,
The Royal Infirmary, Manchester, July 18.

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National Food Policy

SIR,—I was only a little less astonished at the contents of the special report, "Towards a National Food Policy," than I was at the commendatory terms in which it is referred to in the *Journal* of July 16 (p. 141). Rarely can one have seen, sponsored as it is, such an inconsequent *mélange* of mutually contradictory suggestions. One suggestion, however, appears to have been placed in the forefront, and as, from the context, we may suppose that it is regarded as a serious constructive effort, I propose to single it out for discussion. On page 5 of the circular the following statement occurs: "Our argument is that basic food should be taken deliberately out of the normal field of supply, and demand in that food is a primary necessity and must be guaranteed inalienably to all."

The law of supply and demand is a law of Nature as inexorable as the law of gravity. Treating the matter more seriously than it deserves, however, let us try to find out how exactly it is proposed to realize this aspiration. On page 5 it is suggested that "boards should be established to handle the whole distribution of food from the point of production or import to the home of the consumer." Clearly this implies that these boards will be the purchasers of the foodstuffs. How "demand," in the form of the mouths of the populace to be filled, and "supply," in the shape of competing home, colonial, and foreign sources, are to be brushed aside and ignored is not, and indeed never can be, clear. It is possible that, owing to its general indefiniteness, there may lurk somewhere in this circular something that may be construed as a suggestion, such as has indeed been made elsewhere by one of the signatories, that foreign competition should be excluded and that, by means of a Government grant to the undernourished, foodstuffs should be purchased from the home farmer, thus at one blow, according to the original proposer, setting the farmer on his feet, doing away with undernutrition, and encouraging trade. If such a suggestion exists, apart from pointing out the difficulties in getting the undernourished to spend this extra money in the way desired, I am content to leave it to be dealt with by the arguments employed by the Prime Minister in his Kettering speech of July 2.

Fortunately in the interests of space this subject need not be pursued further, nor need attention be given to the related proposals for dealing with the distributor and middleman, for it has to be stated that, strange as it may appear, the real crux of the case has entirely escaped the notice of the "committee against malnutrition." Their proposals as just outlined, it has to be emphasized, contemplate interference with the food supply of each and every individual in the nation. Let us therefore examine what necessity there exists for such a procedure.

It has been stated that 50 per cent. of the population of this country are in a state of undernutrition. On the evidence submitted by the author of this statement it is impossible for anybody to believe it, nor is there anything to show, even if such undernutrition did exist, that it could be attributed to lack of food and not to other conditions which everybody knows are active in producing undernutrition. Further, even if undernutrition to the degree alleged existed, and even if it were due to lack of food, nobody can believe that in the majority of cases it is caused by an actual lack of money wherewith to buy food. Money is often, through ignorance, misspent in buying the wrong type of food or in purchasing what, under the circumstances, can only be termed luxuries.

It would seem, therefore, that of the population there is only a certain minority, small in proportion to the whole, whose state of undernutrition may justifiably be attributed to actual lack of money wherewith to buy food. To suggest that the food supply of the whole nation should be turned upside down and subjected to control under the ill-considered scheme here suggested, in the interests of this minority, is as if one were to contemplate the burning down of a palace in order to fry an egg.

The irony of the situation is that there is not, and never has been, any need for the mental agonizings of committees, formed or forming themselves, for the purpose of finding a solution. As I have pointed out elsewhere, and as must have been obvious to everybody for decades, we have the precedent and practice of hundreds of years' standing in the shape of public dispensaries for providing medical and other help to those unable to afford such. The matter appears so simple and common-sense that I have the greatest hesitation in elaborating it. Briefly, stores—Government and otherwise—could be established in poorer districts in which foodstuffs, purchased wholesale in large quantities to effect an economy, could be sold (or in some cases given away) to those unable through lack of means to buy them in the ordinary way. By such means the expenses and profits of the distributor and middleman could be largely eliminated; and such places could, under the direction of, say, the medical officer of health, not only serve the purpose of giving advice to individual purchasers as to the best manner of expending the money available but also act as centres for the dissemination of correct ideas regarding the purchase, utilization, etc., of foodstuffs. The latter activity, be it said in parenthesis, is apparently the only practicable method of dealing with the group who, having money to spend, spend it so unwisely as to lack suitable food.

Moreover, with the experience of the parent institutions as a guide, the scheme could be put into practice forthwith and function practically from its inception—a situation vastly different from that envisaged on page 1 of the circular. It is doubtful whether "dietary surveys," owing to the intrinsic nature of the subject, will ever produce anything of academic interest even to the ethnologist, not to speak of the practising nutritionist. Time and money, it would seem, could be employed more usefully in carrying out practical schemes such as the one just outlined.—I am, etc.,

J. P. MCGOWAN.

Aberdeen, July 19.

Antimony Therapy

SIR,—Drs. Hans Schmidt and F. M. Peter are to be congratulated on their English edition of *Advances in the Therapeutics of Antimony*, which may well be compared with what is included in Dr. G. M. Findlay and C. M. Wenyon's *Recent Advances in Chemotherapy*. Unfortunately the report states on page 112 that the first patient to receive the tartar emetic treatment was not cured, though Dr. J. B. Christopherson[1] recorded absence of ova and a negative antigen reaction. Difficulty in obtaining evidence of cure is specially difficult in *japonicum* infection, and for this reason the advocation of proprietary remedies in place of tartar emetic must be taken with caution.

I have recently had the opportunity of observing a gradual increase of degenerative changes in the ova of *Schistosomum mansoni*, which was the only type present in the urine of a little schoolboy of 11 whilst undergoing treatment with anthiomaline. I observed between forty and fifty of these ova during treatment. Four months later, though no symptoms of infection were detected, I observed one ovum of *Schistosomum haematobium*, thus confirming a report from the Natal Pathological Laboratory of mixed infection some months before I had seen the case. This suggested that a total of only 30½ c.cm. in twenty-seven days had been insufficient to effect a cure of this patient, thus confirming the opinion that it is seldom wise to discontinue treatment before the twenty-eighth day.—I am, etc.,

Durban, South Africa, July 11. F. G. CAWSTON.

Small-pox and Compulsory Vaccination

SIR,—I am indebted to Dr. C. Killick Millard for the information contained in his letter (*Journal*, July 16 (p. 151). I admit ignorance of the current views among those most familiar with the questions of the aetiology and prophylaxis of small-pox, and his letter was therefore enlightening, perhaps to some others as well as myself. I should be interested to hear to what informed opinion does attribute the decline of small-pox in this country; is it considered to be naturally dying out? Most of us have heard the opinion expressed that the repealing of compulsory vaccination might expose the next generation to a severe epidemic of the disease. Having recently witnessed the effects of a severe epidemic in a country in which small-pox is endemic, perhaps I may be pardoned for feeling that we should be absolutely confident of the results before abolishing compulsory vaccination, and those who advocate it must presumably have a sound basis for their confidence.

The fact that Leicester, where compulsory vaccination was abandoned over fifty years ago, has had such a fortunate experience is perhaps not such a convincing criterion as a similar experience might be in a city like Liverpool, where exposure to infection is presumably greater. Has the experiment of abolition been tried in this city or in any other large port? It would appear on the surface that Leicester's experience might be misleading, in that compulsory vaccination may have been responsible for a reduction in the incidence of infection from which the whole country, including unvaccinated areas, might have benefited. I was chiefly concerned in my previous letter with the question of compulsory diphtheria immunization, and if it was somewhat startling to hear from Dr. Killick Millard that both the Association of County Medical Officers of Health and the Society of Medical Officers of Health have passed resolutions in favour of the abolition of compulsory vaccination, at least it would be interesting to know whether they would recommend its replacement by compulsory diphtheria immunization.—I am, etc.,

London, W.12, July 21. A. L. CRADDOCK.

[1] Christopherson, J. B. *British Medical Journal*, October 8, 1921, p. 551.

The Cancer Campaign

SIR,—Are we conducting the cancer campaign aright? Judging by the meagre results obtained the question can hardly be answered in the affirmative. Great efforts are being made to discover the cause, but, as Mr. Hastings Gilford in his thoughtful letter (*Journal*, July 2, p. 41)—one of the best I have seen—points out, already many of the causes are known, to which may be added tertiary syphilis, especially of the mouth, also lupus. Mr. Lockhart-Mummery (*Surg. Gynec. Obstet.*, 1938, **66**, 257) considers that the condition is bound up with eugenics, which, in my humble opinion, is a very promising field of research, enabling tainted stock to be watched carefully for early manifestations, though marriage on eugenistic grounds is a far cry. I understand that negroes are much less liable to the disease than the white and yellow races, so that a guess may be hazarded that civilization is a factor. It would appear that cancer tends to attack the previously healthy rather than those stricken with other disease, but this is unproven.

Like Mr. Gilford, I think that possibly a cure may be found, as witness the striking successes of sulphanilamide in the treatment of streptococcal infections. It is not right to discourage research work on these lines. One solid rock of truth stands out in this sea of mystery—the fact that *the knife can cure in the early stages*. Admittedly this is a crude weapon, but its results compare favourably with those of radium and *x*-ray therapy, which likewise demand early diagnosis.

To my mind the most obvious method of attack is the dissemination of knowledge already possessed regarding the early symptoms and the discovery of new ones. Nowhere is this called for more than in the case of the commonest of all—gastric cancer. Lord Moynihan used to teach that the symptoms of carcinoma of the stomach were: loss of interest in life, loss of appetite, loss of blood (anaemia), to which may be added loss of abdominal comfort due to meteorism in a patient of previous good health. Now he would be a bold surgeon who would operate for these symptoms, but fortunately we have radiology to clinch the diagnosis. At the very onset the stomach becomes lazy, peristaltic waves are few, and pictures taken at intervals present the same pattern. I have diagnosed a cancer 1 cm. in diameter on this finding alone. The peristaltic waves may be constantly arrested at a particular point, proving destruction of musculature, often by malignant disease. An ulcer of large dimensions is suggestive. A patent pylorus, permitting the continuous entry of barium into the duodenum, means destruction of the sphincter. A small stomach with obstruction signifies malignant disease (L. A. Rowden). Localized disappearance of the mucosal rugae indicates cancer.

All these signs appear long before the classical symptoms occur. Let us examine these symptoms. *Vomiting:* This occurs with a number of gastric and extragastric conditions. *"Coffee-ground" vomit:* The "grounds" represent blood altered by long contact with the gastric juice, not necessarily due to cancer. *Tumour formation:* This is of the utmost value when present; unfortunately the commonest cancers do not produce palpable growths.

Cachexia: But surely this is a sign of hopelessness, as is Virchow's gland at the termination of the thoracic duct. Thus it is apparent that carcinoma of the stomach in its operable stage is diagnosable by *x* rays long before classical signs and symptoms manifest themselves. Similarly, oesophageal and colonic—not including rectal—cancers are diagnosed with greater ease and accuracy with *x* rays than clinically. Renal pelvic growths lend themselves well to this form of diagnosis, as do cerebral growths. Consecutive films reveal bronchial carcinoma long before clinical signs are present.

My idea of a cancer campaign would be the wholesale education of the profession in clinical as distinct from technical radiology. This would be attained by the establishment of an *x*-ray museum on the lines indicated previously (*Journal*, 1937, **2**, 1054): a place where men could wander imbibing knowledge as they can in that magnificent display of the "Pathology of the Living, the Wellcome Museum of Medical Science," organized by Dr. Daukes. It would be supplemented by short intensive courses of demonstrations. I do not agree with Dr. Douglas Webster that the difficulty would be in finding a curator. Provided adequate remuneration was available many men could be found. Money is being poured out on apparatus all over the country with scant justification, judging by some of the results in bone radiology, yet no one seems to realize what a tremendous help a museum would be. I believe, with Dr. Webster (*Journal*, 1937, **2**, 1152), that a long time would be necessary. Rome was not built in a day, but on one particular day it was started. The museum would never be complete, but therein would lie its fascination. I agree with Dr. Webster that a suitable resting place should be found for apparatus which has represented "stepping-stones" in the development of the beautiful apparatus of to-day.—I am, etc.,

London, W.1, July 20. A. P. BERTWISTLE, F.R.C.S.Ed.

Subvesical Diathermy Prostatectomy

SIR,—The short article on subvesical diathermy prostatectomy in the *Journal* of July 23 (p. 175), by Mr. R. Ogier Ward, raises some points which appear to call for comment. The perurethral operation, as he rightly says, is now firmly established as a therapeutic measure of the greatest use in urological surgery. Mr. Ward, in advocating his subvesical operation, claims that in the "ordinary resection operation" a large portion of the trigone, "sometimes almost up to the ureters," is removed. If this were so the operation would long have been abandoned; extensive resection of the trigone inevitably predisposes to sepsis in the underlying space, with serious consequences. The operation as carried out to-day by urologists versed in this type of operation means virtually a subtotal prostatectomy. It has long passed beyond the stage of being a tunnelling or whittling procedure; anything from one-quarter to four-fifths of the gland is removed. The subvesical operation advocated is that which is normally carried out on the subvesical type of gland, but where, as is certainly more common, there are intravesical projections of the lateral lobes, a more radical procedure is manifestly required. The removal of a single piece from the region of the posterior commissure, followed by intra-urethral resection of tissue from the floor and lateral walls, as I interpret Mr. Ward's recommendation, leaves the upper limits of the lateral lobes projecting into the bladder and ideally situated for a ball-valve mechanism to come into play at an early date, so leading to recurrent obstruction. It would to me appear more rational to remove as much of the obstructing tissue as is mechanically possible, bearing in mind, of course, the danger of encroaching too far on to the trigone. Familiarity with the operation should guard against this.—I am, etc.,

London, W.1, July 22. TERENCE MILLIN.

Incomplete Descent of the Testicle

SIR,—"Undescended testicle" is not itself a disease, but is simply one symptom of a general constitutional disturbance of diencephalo-pituitary origin. Investigation of the morphology, reactivity, psychology, and biochemistry of such patients, if carried out with the precision with which the testicles are palpated, points distinctly to this fact. Failure to perform this general constitutional investigation is responsible for many mistakes in treatment. To attempt surgical correction of "undescended testicle" without previous correction of the basic constitutional disturbance is contrary to all the rules of contemporary medical practice. The assertion made by Mr. Denis Browne in his interesting paper (*Journal*, July 23, p. 168) that "pregnyl treatment will not bring down any testis that would not have descended without it" is sweeping, and goes against the experience of most recent workers on this subject. In the first place, pregnyl and all other pregnancy urine gonadotropic substances are far from constituting the whole endocrine metabolic treatment of undescended testicle. Further, I often see in my everyday practice tragedies resulting from the abandonment of cases of diencephalo-pituitary disturbance with undescended testicle to their fate, or ultimately to the surgeon, without any attempt at early correction by means of general constitutional treatment, including endocrinotherapy. The "disquieting possibilities" of hormone treatment mentioned by Mr. Denis Browne do not exist when treatment is planned and given by skilful clinicians, but tragic certainties assuredly make their appearance when such constitutional disturbances are not sought, discovered, and corrected in the early years of life. I am the first to protest against abuse of hormone treatment, but the method is undeniably efficacious provided that the injected hormones are mixed with the commodity used by the great painter in the mingling of his colours—brains.—I am, etc.,

London, W.1, July 22. A. P. CAWADIAS.

Cancer of Pharynx and Larynx

SIR,—This subject, selected for discussion at the recent Annual Meeting of the British Medical Association, was well chosen; for, as Mr. Lionel Colledge mentions when opening the discussion from the surgical aspect (*Journal*, July 23, p. 167), "the introduction of irradiation has rendered the problem of treatment in various situations infinitely more complicated." This problem of treatment—namely, "surgery *versus* irradiation"—is particularly difficult in those early cases of a small cancerous growth limited to the true vocal cord, the extremities of the cord being free of disease.

In an endeavour to clarify the present position, I recorded (*J. Otol. Laryng.*, 1937, **52**, 463) the results which had been obtained at the Manchester Radium Institute following irradiation of intrinsic laryngeal cancer, and contrasted them with those following surgical treatment (laryngo-fissure) in a similar series of cases collected from my own records and those of my Manchester colleagues. This comparative review was restricted to that type of intrinsic laryngeal cancer which was suitable either for surgical treatment or irradiation by the Finzi-Harmer technique. For comparative purposes I adopted a "three-

year symptom-free rate," meaning thereby freedom from recurrence during a period of three years or longer.

The records showed that of eighteen patients treated by irradiation fourteen (77.8 per cent.) were alive without disease (nine for three years, two for four years, and three for five to six years), while recurrence, or continuance of malignancy, occurred in four (22.2 per cent.). There was no operative mortality. In the surgical group (laryngo-fissure) sixteen patients were treated, with an operative mortality of 12.5 per cent. and a recurrence rate of 18.7 per cent., while eleven (68.7 per cent.) survived three years or longer (one for fourteen years, one for thirteen years, two for eleven years, one for six years, six for three to five years).

On figures alone it would appear, therefore, that treatment by irradiation gives a lower mortality with a greater risk of continuance or recurrence of disease. This, however, is not "all the picture," for there can be no doubt that the convalescence in patients treated by irradiation is often most tedious and prolonged, and in my opinion the voice is never quite so good. An operative mortality in the recorded surgical group of 12.5 per cent. is, I think, too high, as is shown by the fact that there was only one post-operative death in twelve of my own cases. Mr. Colledge in his present paper recalls two (8.7 per cent.) deaths in twenty-three operations.

I think it can still be said that, given a case of limited laryngeal cancer, surgery offers the better chance of success, with a slightly higher operative risk but with a quicker and happier convalescence. In conclusion, may I congratulate Mr. Colledge on his excellent surgical results, especially in those cases requiring pharyngotomy or laryngectomy. I feel certain it is to be assumed that the cases he records in Table II of his paper fall within the "three-year survival rate," as mentioned in Table I, though this is not stated. May I suggest that confirmation of this point would be most valuable statistically.—I am, etc.,

Manchester, July 25. F. HOLT DIGGLE.

Chemotherapy of Gonorrhoea

SIR,—In Colonel Harrison's letter (*Journal*, July 9, p. 90) reference is made to the disulphanilamide drug "uleron" and to the technique of its administration in gonorrhoea as practised in the German clinics.

Over one hundred Continental publications on this drug have appeared since last July, and these include reports from the leading German university clinics. Since that time considerable improvements in end-results have been obtained with the drug, and it might therefore be of interest if (as an observer and *not* a clinician) I gave a brief outline of what the current practice of administration in Germany is, and of the views held in that country as to the advisability or otherwise of withholding this chemotherapeutic—as recommended by Colonel Harrison—in the early stages of acute gonorrhoea. This seems all the more necessary as there appear to be wide differences between the technique of sulphanilamide therapy in England on the one hand, and of uleron therapy in Germany on the other.

When the latter drug was first introduced immediate application was practised in the acute case, and it was given for periods of ten days or more continuously. Experience soon showed that gonorrhoea responds to uleron in a few days if it responds at all. It was further observed that lengthy administration, besides being unnecessary, could be harmful. The so-called "Stoss" method of treatment was therefore adopted—that is, the drug was administered in a maximum of three short bouts of treatment lasting, generally, for three to four days apiece and separated by intervals of six days. It is now believed that toxic effects—which reference to the literature shows to have included instances, happily rare, of a serious condition (namely, polyneuritis)—can be avoided altogether if this "Stoss" method of interrupted treatment is employed. At the present time the best results in Germany appear to have been obtained by the use of this "Stoss" therapy, supplemented by vaccine in certain cases. As urethroscopic examinations suggested that many relapses may be due to inflammatory gland foci, urethral dilatation has recently been performed with marked success on the second, fourth, and sixth days after the beginning of uleron treatment. In brief, the rather complicated technique of administration which is now recommended by those responsible for the introduction of uleron into the German clinics, and which is based on results reported in publications referred to above, is as follows:

In the acute cases a three-to-four-day "Stoss" (totalling 12 grammes) is given at once, $KMnO_4$ or weak silver irrigations being started at the same time and continued throughout. If at the end of this course smears are negative for gonococci the "Stoss" is repeated after a six-day pause, as a kind of security measure. If smears are positive one can either (*a*) repeat the course once, or, if need be, twice, after the necessary pause; or (*b*) (as practised by Schreuss) give a six-day course of vaccine followed by a second course of uleron. Tests of cure are done ten to twelve days after the last dose of uleron has been given.

As regards the advisability of withholding uleron treatment for three weeks, as advocated by Colonel Harrison, opinion in Germany seems to be divided on this point. At a recent meeting of the Berliner Medizinische Gesellschaft, Spiethoff, discussing this question, sponsored immediate treatment and quoted as his supporters Schubert, Löhe, Fuss, and also Bernhard, one reason for this system being the likelihood of complications such as epididymitis and adnexitis occurring during the waiting period. On the other hand, Schreuss and Behring's clinic recommend preparatory vaccine treatment prior to application of chemotherapy. The former has stated that with early vaccine therapy and uleron administered as from the tenth to the twelfth day he obtained results at least as good as those with the drug administered at the outset. Felke, quoted by Colonel Harrison, has also emphasized the importance of waiting for three weeks or more before using the drug. Opinion is thus divided, the balance, numerically, being in favour of immediate as opposed to delayed treatment.

It is almost trite to say that as treatment with uleron—and even with sulphanilamide—is still in the very early stage of development it is as yet impossible either to lay down hard-and-fast rules for administration or to assess the end-results with any certainty.—I am, etc.,

London, W.1, July 19. RIPLEY ODDIE.

Sulphanilamide in Acute Maxillary Sinusitis

SIR,—I have just had experience of a use for sulphanilamide which I thought might be of interest as I have not seen it described so far. My patient, an adult woman, developed acute pain in the antrum and an intense headache on the same side, following a short typical attack of influenza. The sinusitis showed all the classical symptoms, with an intermittent temperature of about 101° F. The condition was becoming unbearable, and she was very reluctant to submit to surgical drainage, so, although the causative organisms were not identified, I started her on prontosil album. After 4 grammes the first day the pain had decreased 90 per cent. and natural drainage became established; she had 3 grammes for two days

following and then 1.5 grammes for another two days, making a total of 13 grammes in five days. She experienced slight nausea throughout but no other disadvantages, and she avoided surgical treatment, which pleased her greatly. Drainage is still free, but the discharge is decreasing steadily, and the patient feels well and is about her household duties.—I am, etc.,

Rangoon, July 18. J. SHANKS LAURIE.

Sulphonamide for Epilepsy

SIR,—The following notes on the action of sulphonamide in a case of old-standing epilepsy may stimulate interest in trying out this drug.

A boy aged 11¼ years, physically sound, with no family history of epilepsy, at the age of 4¼ years had major fits once a month for six months. He had no fits for two years, then a bad fit followed by coma lasting one week. He improved and had only occasional attacks of petit mal till four years ago, when he came under my supervision. For the last three years he has averaged six attacks of petit mal a day and two to three major fits a week. His mental development was normal till 1934, since when it has gradually deteriorated. All sources of reflex irritation were dealt with, and in December, 1937, he was completely investigated in hospital. Ventriculography showed no focal damage. Encephalograms showed enlargement of the ventricular system, explained by widespread cerebral atrophy.

During the last four years ketogenic diet, prominal, luminal, and bromides have been tried—prominal and luminal in small, moderate, and large doses. There was no improvement in the number of fits or in the deterioration of the mental condition.

In despair 7½ grains of sulphonamide were given thrice daily. In three days the boy ceased having either major or minor fits, but was very restless and had night terrors. The sulphonamide was stopped at the end of a week, and two days later he had two major fits, which recurred each day. Treatment with sulphonamide (15 grains t.d.s.) was re-instituted after a week's interval (and is still being continued under observation for toxic symptoms). The boy has had no fits of any kind from two days after re-instituting the sulphonamide treatment (fourteen days ago).

The boy's mental condition shows definite improvement. He is having no sedatives and is on a normal diet and regime. After four years of depressing results with cerebral sedatives the action of the sulphonamide appears nothing short of miraculous.—I am, etc.,

J. C. YEOMAN, M.B., B.S.

Cullercoats, Whitley Bay, July 20.

Complications of Gold Therapy

SIR,—Any who wish can prove for themselves the truths contained in the letter from Dr. H. Warren Crowe (*Journal*, July 2, p. 44). Since 1930 suitable cases of rheumatic disease have been treated at the Royal Portsmouth Hospital with small doses of the vaccines advised by Dr. Warren Crowe, and the claims advanced for this treatment have many times been substantiated. For the last two years or so vaccine-resistant cases—a small minority when correct doses are employed and the doses are properly spaced—have been given intramuscular injections of gold. The doses have often been as small as those given at the Charterhouse Clinic, and the results, seemingly, have run parallel with those of that clinic; no toxic symptoms have occurred. Home exercises, insisted on from the first attendance, are of the greatest value. When the disease has become less active physiotherapy and/or manipulation are combined with injection treatment.

My colleague, Dr. R. S. MacHardy, treats cases of arthritis, preferably those of the rheumatoid type, with low-voltage *x* rays (60 to 90 kV). He gives a first dose of 80 *r* units on not more than two joints. His aim is to get a slight local reaction within forty-eight hours as evidenced by some increase of pain and heat in those joints. Should the reaction not appear he halves the dose at the next visit, when the desired reaction is likely to occur unless the dose is still too large. This technique is a further example of the value of small doses in the treatment of rheumatic disease. Though quick local improvement is aimed at when vaccines and gold are employed, rather than the slight local reaction which follows the use of the small doses of *x* rays, both methods produce a definite improvement in the patient's general health in a short time.—I am, etc.,

Southsea, July 11. H. FARNCOMBE.

SIR,—Our researches at the Charterhouse Rheumatism Clinic have demonstrated that the differential sedimentation test,[1] which is an elaboration of the blood sedimentation rate, supplies just that method for which Dr. J. B. Bennett (*Journal*, July 16, p. 152) and his collaborators at Bath are searching. From its indications we have been able to decide which cases are suitable for gold and, after the first, determine the proper size of subsequent doses. Further, the test gives adequate warning of the approach of toxic reactions.

I gather that Dr. Slot (*Journal*, July 16, p. 152) must have tried the small-dose method following a letter of mine in the *Lancet* (1937, **2**, 990), but possibly the last paragraph of that letter escaped his notice, for here I ventured to claim that the direct result of gold was like that of vaccine—an immunity response. The two methods, vaccine therapy and chrysotherapy, would thus be complementary and not, as Dr. Slot says, based on entirely different conceptions of therapy.

The opinion of Koppenhöfer[2] is that gold acts as a catalytic stimulator to the reticulo-endothelial system. He showed that when a colloidal gold salt is injected it finds its way immediately into the cells of an inflammatory area, where it is reduced to the metal or the simple sulphide. If this view is correct, there does not seem to be any obvious necessity for the more complicated gold salts. Experience at the Charterhouse Rheumatism Clinic tends to confirm Koppenhöfer's views of the action of gold, as at present we are using with quite appreciable success a simple colloid emulsion of gold sulphide, prepared for us by British Colloids, in doses up to a maximum of 2.5 mg.

I understand it to be a principle of the chemistry of catalysts that the optimum concentration is rarely the largest tolerable and quite commonly it is an extremely small quantity. Since we find that we are able to obtain both the desired clinical and biochemical effects which we seek by using gold in these small doses at long intervals, there seems no sound reason for following blindly the manufacturers' posological tables into the regions of hundreds of milligrammes and toxic reactions.

It must be understood that we only use gold in that small proportion of cases which show extreme sensitiveness to vaccine, but that is because in the majority of cases vaccines give as good results as can be expected.

I do feel that it is extremely important for the profession as a whole to decide whether doses of gold are inadequate unless they are large enough to carry the risk of toxic reactions. Through these reactions this valuable method is rapidly falling into disrepute. One often has the greatest difficulty in persuading an entirely

[1] *Charterhouse Rheumatism Clinic Papers*, 1937, **1**, 35.
[2] *Beit. klin. Tuberk.*, 1935, **86**, 549.

suitable patient to agree to chrysotherapy. The fact is that rheumatic patients are getting increasingly alarmed by the stories of "severe illness," of "terrible skin trouble," of "gold abscesses which fail to heal for months," and such like. I am personally quite convinced that none of these is necessary, and that in the great majority of suitable cases (those showing some degree of hyperergy) subtoxic doses at prolonged intervals are effective.—I am, etc.,

London, W.1, July 25. H. WARREN CROWE.

Keratoplasty

SIR,—Referring to the letter of Mr. B. W. Rycroft in the *Journal* of July 2 (p. 43) concerning my case of keratoplasty, I should like to point out that what is seen in the photograph is the apparent position of the rim of the pupil. Under normal conditions the pupil dilates up to a diameter of 4 mm., whereas the trephine used to prepare the graft was 4.63 mm. in diameter. It is well known that the usual results of optical iridectomy are disappointing. Regarding the duration of the transparency of a graft, I quoted in my paper the observations of those who have had considerable experience in corneal grafting—for example, Filatov.—I am, etc.,

Bath, July 15. T. H. S. TIZZARD.

Medico-Legal

THE BOURNE CASE: A LEGAL VIEWPOINT

[BY A BARRISTER]

So far as the ethical and social aspects of the Bourne case were concerned probably everyone, except those who adopt the extreme view, on religious grounds, that abortion is never justified, was glad that Mr. Bourne was acquitted. Looking at the matter, however, from a purely impersonal standpoint as a member of the legal profession, it is rather to be regretted that there was not a formal conviction and a nominal sentence of one day, in order that the law might be discussed in the Court of Criminal Appeal, and possibly even in the House of Lords, if the Attorney-General's *fiat* could have been obtained to take the case there as involving "a question of law of exceptional public importance." For it is no disrespect to the judge to say—and he would certainly admit it—that no summing-up to a jury, however careful, fair, and accurate, carries the same weight of authority as the deliberate pronouncement of an appellate tribunal. Strictly speaking, indeed, the opinion expressed in the summing-up is not binding on other judges of co-ordinate jurisdiction, though they would be reluctant to differ from it. But the fact remains that it is still open to any other judge to say: "I have carefully considered the statement of the law by Mr. Justice Macnaghten in Rex *v.* Bourne, but, with the utmost respect to the learned judge, I do not agree with his view and am not prepared to follow it." And the rival view might be more rigid or more liberal than that of Mr. Justice Macnaghten. Whereas if the case could have been taken higher the decision of the Court of Criminal Appeal would have bound all judges of first instance, until either the House of Lords overruled it or Parliament dealt with the position by statute.

Abortion, Lawful and Unlawful

The general opinion of the legal profession seems to be that as the law stands Mr. Justice Macnaghten's ruling was right, erring, if at all, on the side of rigidity. No doubt exists that abortion to save the mother's life is lawful; few will doubt that it was correct to extend that to include the prevention of serious or permanent injury to her health; some would go further. No definition, these would say, has been laid down by Parliament of "lawful" or "unlawful" in this connexion. The saving of life is admittedly an example of that which is lawful, but is there any authority for saying that it is the sole and exclusive example, and that there cannot be other circumstances of sufficient gravity to render abortion lawful? Among such possible alternative grounds they would probably be willing to include the desirability of terminating a pregnancy resulting from a criminal assault on a girl under the age of consent, and possibly any pregnancy resulting from a criminal assault, whatever the age of the expectant mother. Such a view might well be based on the intolerable position of a mother whose child, by its very existence, was a continual reminder of the ordeal to which she had been subjected, to say nothing of the undesirability of bringing her into further contact with the assailant over questions of maintenance, which would probably arise if the child were born. As to this, one may observe in passing that, while something more than the expectant mother's mere assertion that she has been assaulted is obviously required, something less than the conviction of the assailant ought to suffice, since there may well be cases where the fact of an assault is not in doubt but where the identity of the culprit is never established. Apart from a conviction, therefore, if this ground of abortion were allowed adequate medical or other evidence should be accepted.

There is a certain amount of inferential evidence to support this more extended and liberal view of the law. It is only within recent years that Parliament has raised the minimum age of marriage to sixteen, from which one may conclude that it was thought that motherhood, even in wedlock, ought not to be permitted below that age, and that pregnancy in a girl under sixteen must always and in all cases result from a crime. In the Infant Life (Preservation) Act, 1929, which created the specific offence of child destruction it was expressly enacted that to kill a child *capable of being born alive* should be felony unless it was done for the purpose only of preserving the life of the mother. This appears (*a*) to draw a distinction between abortion after the child is viable and abortion at an earlier stage, and (*b*) to imply that at the earlier stage some other causes may justify abortion, for otherwise this express restriction with regard to the later stage seems wholly superfluous.

Difficulty in Framing a Definition

When one considers possible reform of the law to make more explicit the circumstances in which abortion should be lawful, one is faced with the usual difficulty in framing a definition which will not, on the one hand, let in too much and make abortion easy for any unwilling mother, or, on the other hand, shut out some cases which a humane and conscientious surgeon would desire to include. Nor is reliance on a second opinion, even if it were given statutory, as distinct from professional and customary, recognition, a wholly satisfactory safeguard against improper interference with pregnancy.

I have more than once heard it stated—with what truth your medical readers will be better able to judge than I—that a woman provided with sufficient funds can easily get an illegal operation performed with all the appurtenances of respectability provided she goes to the right man (or men). The very existence of such a "racket" may be apocryphal: one would certainly not suggest that it is widespread, but the fact that it is obviously possible minimizes considerably the value of the protection afforded to the honest surgeon by a second or third opinion.

It has been suggested that a solution of the problem might be found in legislation on the following lines:

(*a*) Abortion to be an offence in any circumstances if performed by anyone other than a registered medical practitioner.

(*b*) An obstetric board of, say, seven eminent gynaecologists to be set up. The method of nomination of such a board is obviously a matter for the medical profession, not for a lawyer to suggest. The board to have power to act by a panel of not less than three. (This provision is necessary to prevent the possibility of a member being called on to adjudicate on a case of his own.) It would probably be necessary to appoint regional boards in a number of large towns to prevent patients having to come long distances for examination.

(*c*) Any medical practitioner to be at liberty to refer to the board any case in which he considered that abortion ought to be allowed on any ground, and the board, after examining the patient and considering *all* the circumstances of the case, including the mother's health, the probability of good or bad heredity for the child, and any special ethical or social problems arising out of the case, to have power to permit or refuse abortion.

(*d*) Abortion without the board's permit to be unlawful except in cases of immediate urgency, in which case a full report on the circumstances should be furnished forthwith to the board by the surgeon.

(*e*) A reasonable fee to be paid for the board's examination and certificate by those who can afford it; hospital cases to be given it as part of the hospital service.

If such legislation were introduced the opportunity might perhaps be taken to overhaul and bring into line with modern thought and knowledge the whole criminal law with regard to sexual offences.

M.A., B.C.L.

UNSUSTAINED CHARGE OF NEGLIGENCE

On July 21, without leaving the box, a special jury at Leeds Assizes returned a verdict for Dr. Florence Slade in an action against her for alleged negligence in the course of attendance upon a young married woman in her first pregnancy. Mrs. Isabella Mary Lloyd-Hughes sued to recover damages from Dr. Slade; and Trevor Lloyd-Hughes, her husband, of Headingley, an insurance official, claimed for out-of-pocket expenses incurred as a result of the alleged negligence. Dr. Slade denied negligence and counter-claimed for her fees against the husband. Mr. G. H. B. Streatfield, K.C., for the plaintiffs, submitted that complications were discovered by another doctor after some lapse of time, and the result was that Mrs. Lloyd-Hughes had to undergo a much more serious operation than otherwise would have been required. The defence called Mr. Carlton Oldfield, consulting gynaecological surgeon to the General Infirmary at Leeds, who said that there was not one symptom in the case which should have induced Dr. Slade to suppose that everything was not perfectly normal. Judgment was entered for the defendant with costs on both the claim and the counter-claim for fees.

The Services

DEATHS IN THE SERVICES

Colonel ALEXANDER FRASER RUSSELL, C.M.G., late R.A.M.C., died at a nursing home in Edinburgh on June 12, aged 81. He was born at Kilmodan, Argyllshire, on December 21, 1856, and was educated at Edinburgh University, where he graduated M.A. in 1877, and M.B., C.M. in 1881. Entering the Army as a surgeon on February 5, 1882, he attained the rank of colonel on November 2, 1911, and retired on December 21, 1913. He served throughout the South African War of 1899 to 1902, when he took part in the relief of Kimberley, and in operations in the Transvaal, Orange Free State, Zululand, and Cape Colony, and was present in the actions at Paardeberg, Poplar Grove, Dreifontein, Karee Siding, Zand River, Johannesburg, Pretoria, and Diamond Hill. He was mentioned in dispatches in the *London Gazette* of April 16, 1901, and received the Queen's Medal with six clasps, the King's Medal with two clasps, and the C.M.G. He rejoined for service during the war of 1914–18, throughout which he served as A.D.M.S. on Salisbury Plain.

Obituary

CHARLES H. H. HAROLD, O.B.E., M.D., D.P.H.

Lieutenant-Colonel R.A.M.C. (ret.); Director of Water Examination, Metropolitan Water Board

We announce with great regret the sudden death on July 18 of Colonel Charles Harold, who succeeded the late Sir Alexander Houston as Director of Water Examination, Metropolitan Water Board, in March, 1934. Only a fortnight ago at Plymouth he was re-elected for the third time to represent the Royal Army Medical Corps upon the Council of the British Medical Association.

Charles Henry Hasler Harold was born on January 1, 1885, and studied medicine at Liverpool University, graduating M.B., Ch.B. with honours in 1907, after which he spent two years in house appointments at the Liverpool Royal Infirmary. He was elected Holt Fellow of the University in 1909, and in the following year took his M.D. degree and joined the R.A.M.C. as a lieutenant, winning the Tulloch Memorial Medal and the Ranald Marten Medal. After several years' service in India he was promoted captain in 1914 while at Dagshai. During the war he served with the Indian Expeditionary Force in Mesopotamia and with the Marri Punitive Expedition in 1918; for his services in East Persia and Afghanistan 1918–20 he was mentioned in dispatches and promoted brevet major. He had been D.A.D.M.S.(San.) of the 3rd Lahore Division and on the Lines of Communication, East Persia, and sanitary adviser to the Forces in Transcaspia. In 1921 he was made instructor at the Army School of Hygiene, Aldershot, and five years later Assistant Director of Hygiene and Pathology, Northern Command, India. His last military post was that of Assistant Director of Hygiene, Southern Command, England, and he retired from the Service in 1934 with the rank of brevet lieutenant-colonel on taking up the important duty of watching over the purity of the water supply of the Metropolis. Colonel Harold's presence in London gave the British Medical Association an opportunity to profit by his knowledge and sound judgment at headquarters. In 1935 he was appointed to the Naval and Military Committee and elected to the Council as representative of the R.A.M.C.; he was also a member of the Subcommittee on Terms and Conditions of Service of Civilian Medical Practice.

After graduation at Liverpool he published jointly in the *Journal of Physiology* a paper on the influence of the presence and position of various radicles of adrenaline on its physiological activity; he also wrote on his war experiences with tick fever in East Persia, on the breeding of *Anopheles maculipennis* in captivity, and on mosquito bionomics. A contribution to the *Journal of State Medicine* in 1925 on sterilization of water by chlorine and some of its compounds had been preceded by a paper on the chloramine treatment of water in the field, and these foreshadowed the nature of his future line of work. The two annual reports bearing Harold's

signature on the results of chemical and bacteriological examination of the London waters were lucid and informative documents, lacking only the picturesque touch that readers had looked for year by year in the writings of Alexander Houston. Under Harold the high standard of purity of the water supplied by the M.W.B. was fully maintained. It is sad to think that death has prevented him from continuing his valuable career in the large new chemical and bacteriological laboratories at New River Head. He was a man of the most kindly and approachable disposition.

[The photograph reproduced is by Lafayette, London.]

The death of Dr. ANDREW WILLIAM THOMSON of Jamaica, which occurred on May 30, was mourned throughout the parish of Clarendon. Born on December 29, 1868, he pursued his medical studies at the University of Aberdeen, graduating M.B., C.M. in 1892, and returning home entered the Government Medical Service in the same year. His first appointment was acting district medical officer at May Pen in the parish of Clarendon. Soon, however, he was transferred to Stony Hill and later to Falmouth, and it was not until 1902 that he returned to Clarendon, where as district medical officer at Chapelton he was to serve the community faithfully until his death. For forty-six years Dr. Thomson was an active member of the Jamaica Branch of the British Medical Association, and in 1932 his colleagues showed their esteem by electing him to the office of president. In more recent years he was forced by ill-health to curtail his activities, but his interest in Branch affairs never abated. In municipal life any scheme for the improvement of the lot of the working man was assured of his whole-hearted support, and despite the continuous pressure of a very large practice he still found it possible to give much time, even in his busiest years, to this cause. Loyal to his colleagues, sympathetic with his patients, and courteous to all, he won the esteem and affection of all with whom he came in contact. The profession is the poorer for his passing.

The death of Dr. DAVID LAURENCE TATE, which occurred early in June, robbed the parish of St. James, Jamaica, of one of its outstanding personalities. Although his health had been failing for some time his sudden death came as a shock to his many friends throughout the island. He studied medicine at Glasgow, graduating M.B., Ch.B.Glas. in 1906 and taking the F.R.C.S.Ed. in 1918. A very able surgeon and keenly interested in his profession, Laurence Tate was incapable of sparing himself. His early years in the Government Medical Service were spent in the parish of St. Mary, whence he was transferred to Montego Bay, where as district medical officer he served zealously until his retirement a few years ago. In 1908 he became a member of the British Medical Association, and to the end he maintained a lively interest in the activities of the Jamaica Branch, particularly in medico-political problems. To his sorrowing widow and daughters the Branch tenders its sincere sympathy.

Dr. WILLIAM CLAUGHTON DOUGLASS, who died at Stanmore, Middlesex, on July 7, was for many years a keen worker in electrotherapy and *x*-ray diagnosis. He studied medicine at St. Bartholomew's Hospital, and qualified M.R.C.S., L.R.C.P. in 1900. During the war he attained the rank of major R.A.M.C., and won the Military Cross. He had been clinical assistant in the *x*-ray and electrotherapeutic departments at St. Bartholomew's, medical superintendent of Clare Hall small-pox hospital, and medical director of the Comely Bank electrotherapeutic clinic at Walthamstow. He obtained the Cambridge D.M.R.E. in 1926, and in recent years held the posts of assistant medical officer in the *x*-ray and electrotherapeutic department of the Metropolitan Hospital, and medical officer in charge of the electrotherapeutic and light departments at the Connaught Hospital, Walthamstow. Dr. Douglass published a small work, *The Elements of Medical High Frequency and Diathermy*, in 1930, and wrote several papers on his specialty. He had been a member of the Harrow Division of the British Medical Association for the past ten years.

Dr. CHARLES R. DICKSON, who introduced *x* rays to the Toronto General Hospital and, after losing his sight through exposure to the rays, founded in 1914 the Canadian Institute for the Blind, died at Toronto on July 9.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examinations indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*Part I:* J. C. A. Liddy. *Part II:* S. J. H. Douglas, Heather D. Dowling, Kathleen M. Henderson, F. B. Kiernander, Mary C. Leishman, K. Lumsden, J. K. Muir, R. S. Padaki, C. N. Pulvertaft, S. J. R. Reynolds, Alice M. Ross, A. Smerasuta, S. E. D. H. E. Taoudi, L. Werbeloff, M. A. A. Zohdy.

UNIVERSITY OF LONDON

At a meeting of the Senate held on July 20 the following titles were conferred in respect of posts held at the Schools of the University: *Professor of Anatomy*, Mr. E. P. Stibbe (King's College); *Reader in Clinical Pathology*, Dr. M. Maizels (University College Hospital).

Dr. C. K. Meek and Professor W. M. MacMillan were appointed Heath Clark Lecturers for 1938–9.

UNIVERSITY COLLEGE

The following awards have been made in the Faculty of Medical Sciences: *Bucknill Entrance Scholarship*, S. M. Chris. *Entrance Exhibitions*, D. B. Griffiths, Lesley M. M. Seaton. *Entrance Scholarship*, H. E. Thomas. *Anatomy* (Senior Course, gold medal), Gwendoline R. Briggs; (B.Sc.), Scholarship, D. G. Lambley. *Practical Anatomy* (Suckling Memorial Prize), S. D. V. Weller. *Physiology* (Senior Course, gold medal and (B.Sc.) Scholarship), Gwendoline R. Briggs; (Schafer Prize) R. A. Gregory.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL

The following scholarships, exhibitions, and prizes have been awarded at University College Hospital Medical School: *Goldsmid Entrance Scholarships*, E. Emanuel, Janet W. Shrimpton. *Goldsmid Entrance Exhibition*, W. D. M. Paton. *Filliter Entrance Scholarship in Pathology*, Angela E. Ricardo. *Atchison Scholarship*, Josephine Barnes. *Atkinson Morley Scholarship*, J. D. N. Nabarro. *Magrath Scholarship*, J. I. P. James, J. D. N. Nabarro. *Filliter Exhibition and Alexander Bruce Gold Medal*, A. Hargreaves. *Liston Gold Medals*, J. C. Ford, B. J. Harries. *Erichsen Prize*, J. C. Ford. *Fellowes Gold Medals*, R. N. Houlding, Elizabeth Topley. *Fellowes Silver Medals*, J. R. Squire, A. G. Spencer. *Tuke Silver Medal*, Elizabeth Topley. *Junior Clinical Surgery Prizes*, E. Neumark, D. Coueslant. *Ferriere Scholarship*, Annie E. Walker. *Postgraduate Award: Leslie Pearce Gould Scholarship*, Margaret D. Baber.

LONDON HOSPITAL MEDICAL COLLEGE

The Price Scholarship in Anatomy and Physiology, open to students of the Universities of Oxford and Cambridge, has been divided between A. H. Ferguson of Wadham College, Oxford, and F. H. Howarth of Corpus Christi College, Cambridge.

UNIVERSITY OF MANCHESTER

The following appointments were made on July 14:

Lecturer in Medicine for Dental Students, Dr. C. S. D. Don. *Lecturer in Surgical Pathology*, Mr. A. H. Southam. *Lecturer in Operative Surgery*, Mr. R. L. Newell. *Special Lecturer in Bacteriology*, Dr. R. W. Fairbrother. *Demonstrator in Anatomy*, Dr. I. W. Ball.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examinations indicated:

M.D.—W. B. Roantree, C. G. S. van Heyningen.

FINAL MEDICAL EXAMINATION.—*Part I, Materia Medica and Therapeutics, Pathology and Bacteriology:* *L. Soloman, *J. Moore,

†E. C. J. Millar, †D. Aiken, J. H. Acton, G. H. Blennerhassett, J. T. Hanna, Caroline A. McEvett, D. L. Harbinson, M. A. Majekodunmi, R. StC. Mooney, J. M. Taylor, D. R. McCaully, R. J. S. Wilson, Phoebina Eakins, H. J. Smith, I. M. Ali, G. E. P. Kelly, P. F. Longford, J. R. Healy, W. M. Winn, Isabel M. Woodhouse, E. G. W. Lynch, G. Tattersall, B. E. R. Solomons, A. E. Tinkler, H. K. Bourns, D. S. M. Enraght-Moony, E. Kawerau. *Part II, M.B.:* †G. E. Nevill, †F. H. Counihan, †T. L. Lawson, †R. T. Burkitt, †Isabella M. Dorman, †S. Sevitt, †H. A. Dougan, R. W. Temple, B. Mayne, F. D. F. Steede, Elizabeth M. Rees, Deborah Bloom, D. B. Taylor, R. J. Grove-White, W. W. McGrath, R. Wilson, Muriel Elliott, F. W. Parke, S. L. Wray, T. W. Buckley, Mary C. Conlin, J. R. Mahon, D. K. Stewart, Emily E. E. Hill, G. D. Stevenson, E. W. R. Hackett, H. R. T. Devlin, M. F. X. Slattery, W. C. Good, D. E. Meares, M. E. C. Balmer, J. W. Cathcart, D. M. R. Barry, R. J. Balfe, J. C. de R. Sugars, L. A. S. Edmondson, J. P. Condon. *B.Ch.:* *G. E. Nevill, *H. A. Dougan, *R. T. Burkitt, *T. L. Lawson, †Isabella M. Dorman, †W. C. Good, †B. Mayne, †J. C. de R. Sugars, †R. J. Grove-White, †D. B. Taylor, Elizabeth L. J. Ryan, F. H. Counihan, R. Wilson, J. R. Murdock, W. W. McGrath, J. G. Waugh, Muriel Elliott, D. M. R. Barry, Deborah Bloom, R. W. Temple, C. M. Ludlow, W. A. J. Pike, F. D. F. Steede, T. W. Buckley, E. W. R. Hackett, J. T. Speidel, Mary C. Conlin, G. D. Stevenson. *B.A.O.:* †S. Sevitt, †M. Herman, †L. S. Levinson, †Isabella M. Dorman, Mary A. Conyngham, V. T. Williams, J. L. Handelman, B. Kernoff, J. R. Mahon, Elizabeth M. Rees, Sylvia M. FitzGerald, W. Sandford, L. H. Bamber, E. Cullen, F. R. T. Hollins, W. B. Welply, E. R. F. Mellon, F. G. Millar, H. J. F. Draffin, Elizabeth L. J. Ryan, Rosaleen de C. McCormick. *M.A.O.:* D. P. Harris.

DIPLOMA IN GYNAECOLOGY AND OBSTETRICS.—P. M. Bloom, A. E. A. E. El-Tawil, M. Mishriki, S. C. Werch, O. K. Khallaf, A. Thomas, W. N. Chau, Y. Y. Azachey, G. B. Kabraji.

DIPLOMA IN PUBLIC HEALTH.—*Part II:* *W. A. Gillespie, *F. Keane, *Charlotte F. Pike, †Eveleen M. H. Scott, †B. P. P. Berney, †G. H. B. Roberts, †R. A. Heatley, A. Dolphin.

* First-class honours. † Second-class honours.

The following prizes have been awarded:

Surgical Travelling Prize, Bicentenary Memorial Prize, and Edward Hallaran Bennett Medal: G. N. MacFarlane, M.B. *FitzPatrick Scholarship:* T. L. Lawson, M.B. *Medical Scholarships:* Anatomy and Physiology, W. E. O'C. C. Powell; Chemistry, Physics, Botany, and Zoology, C. S. Cummins. *Dr. Henry Hutchinson Stewart Medical Scholarships:* Anatomy and Physiology, Elizabeth D. L. Simpson; Chemistry, Physics, Botany, and Zoology, T. N. Strong. *Dr. Henry Hutchinson Stewart Scholarship in Mental Diseases:* J. E. Gillespie, M.B. *John Mallet Purser Medal:* Maude F. P. Bigger. *Daniel John Cunningham Memorial Medal and Prize:* Elizabeth D. L. Simpson. *De Renzy Centenary Prize:* Eveleen M. H. Scott, M.B. *Aquilla Smith Prize:* L. Solomon. *Walter G. Smith Prize:* Mary K. McCarthy. *Conolly Norman Medal in Mental Diseases:* H. A. Dougan.

NATIONAL UNIVERSITY OF IRELAND

UNIVERSITY COLLEGE, CORK

The following medical degrees and diplomas were conferred on July 9:

M.D.—O. T. D. Loughnan, T. P. O'Connor.

M.B., B.CH., B.A.O.—R. A. MacCarthy, Ellen Murphy, W. J. Twohig, R. G. Barry, A. S. Beare, M. F. Beckett, C. J. Clohessy, M. M. Conran, Mary Corbett, M. Cronin, G. R. Cubitt, P. Farrell, J. FitzGerald, L. Kelly, Mary Lawton, J. Lucey, D. J. R. McConvell, Josephine C. Murphy, N. Newman, C. P. O'Connell, P. O'Flynn, P. O'Keefe, Mary F. O'Leary, J. G. Paton, Eileen L. Quinlan, M. F. Ronayne, R. H. Watson.

D.P.H.—V. J. Dillon, T. P. P. O'Riordan.

B.Sc.P.H.—T. P. P. O'Riordan.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly Council meeting of the Royal College of Surgeons of England was held on July 14 with the President, Sir Cuthbert Wallace, in the chair.

Mr. Hugh Lett was elected President, Professor G. Grey Turner was re-elected Vice-President, and Mr. R. E. Kelly was elected Vice-President for the ensuing year.

Mr. Victor Bonney, Mr. R. C. Elmslie, and Sir William Girling Ball were readmitted, and Mr. L. E. C. Norbury was admitted, to the Council.

Dr. Mahmud Bayumi Bey (Cairo) was admitted to the Fellowship of the College, having been elected in April last.

The congratulations of the Council were expressed to Mr. Cecil P. G. Wakeley and Professor A. St. G. Huggett, who have been awarded the Insignia of Officer of the Order of the Nile (Third Class), and to Mr. Horace H. Rew, Director of Examinations of the College, who had been awarded the Insignia of Officer of the Order of the Nile (Fourth Class), after the Primary Examination for the Fellowship conducted in January of this year.

Lecturers

The following lecturers were appointed for the ensuing year:

Hunterian Professors.—Mr. George Armitage, one lecture on Gastroscopic Observations on the Healing of Chronic Gastric Ulcer; Miss Dorothy J. Collier, one lecture on Facial Paralysis and its Operative Treatment; Mr. A. L. d'Abreu, one lecture on Congenital Cysts of the Lung and Pleura; Mr. F. R. Edwards, one lecture on Studies in Experimental Pneumonectomy and the Development of a Two-stage Operation for the Removal of a Whole Lung; Mr. A. J. Gardham, one lecture on Surgery of Carcinoma of the Mouth and the Tongue; Mr. F. J. S. Gowar, one lecture on Pulmonary Lobectomy: Post-operative Complications and their Prevention: A Clinical and Experimental Investigation; Mr. C. A. Joll, one lecture on the Pathology, Diagnosis, and Treatment of Lymphadenoid Goitre (Hashimoto's Lymphogranuloma); Mr. J. H. Mulvany, one lecture on Differentiation in the Mechanism, Symptomatology, Pathology, and Treatment of the Two Types of Exophthalmos associated with Graves's Disease and a Short Account of their Probable Pathogenesis; Mr. D. W. G. Murray, one lecture on Heparin in Thrombosis; Mr. E. W. Riches, one lecture on Hydronephrosis: The Results of Conservative Treatment; Professor J. Paterson Ross, one lecture on the Effects of Radium upon Carcinoma of the Breast; Mr. H. T. Simmons, one lecture on Relapse following Sympathectomy.

Arris and Gale Lecturer.—Dr. John Beattie, three lectures on subjects relating to Human Anatomy and Physiology.

Erasmus Wilson Demonstrators.—Mr. R. St. L. Brockman, one demonstration on Some Inflammatory Lesions of the Alimentary Canal; Mr. R. Davies-Colley, one demonstration on the Pathological Contents of the Museum; Mr. L. W. Proger, four demonstrations on the Pathological Contents of the Museum.

Arnott Demonstrator.—Mr. A. J. E. Cave, six demonstrations on the Contents of the Museum.

The Hallett Prize was awarded to Howard Hadfield Eddey of the University of Melbourne, and the ninth Macloghlin Scholarship to Frank Batley of Oldham Hulme Grammar School.

The new regulations for the Licence in Dental Surgery, which will become effective gradually as from October 1, were approved, and the Council agreed to a recommendation that a Postgraduate Diploma in Dental Surgery should be instituted.

The Council appointed Professor R. J. S. McDowall (Physiology) and Professor R. Bramble Green (Anatomy) to act as Examiners for the Primary Examination for the Fellowship to be held early in 1939 in Lahore (India) and Cairo (Egypt).

The following reappointments for the ensuing year were approved: Mr. L. W. Proger, Pathological Curator of the Museum; Sir Frank Colyer, Honorary Curator of the Odontological Collection (on the nomination of the Royal Society of Medicine); Mr. C. J. S. Thompson, Honorary Curator of the Historical Collection.

Mr. George Kent Harrison (Toronto) was appointed a Leverhulme Scholar for one year from October 1, and Dr. David Slome was reappointed a Mackenzie Mackinnon Research Fellow.

Diplomas

A Diploma of Membership was granted to Chelliah Ponnambalam (Ceylon) and Diplomas of Fellowship were granted to Edward Philemon Connolly and Louis Julius Horn, both of Sydney.

Diplomas were granted jointly with the Royal College of Physicians of London as follows:

DIPLOMA IN ANAESTHETICS.—W. Bourne, S. M. Campbell, A. L. Flemming, P. V. Francis, S. Johnston, H. J. Shields, C. C. Stewart.

DIPLOMA IN PUBLIC HEALTH.—R. H. Barrett, C. Crowley, F. R. Glover, J. C. Hogarth, N. D. Karani, Susan MacMahon, A. W. McRorie, J. Marshall, B. Roberts, C. Seeley, C. G. K. Thompson, P. W. Vilain.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—M. J. Brookes, B. Finkleman, J. F. R. Goodlad, R. K. Grossart, C. R. Harris, C. Holmes, A. A. Huse, A. Leitch, J. P. McGuinness, R. L. Moody, R. B. Morton, E. K. Mulinder, J. E. Saville, S. Sharman, A. Stoller, V. H. Tompkins, Betty M. Zeal.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—R. H. B. Bettington, B. K. Kapur, K. M. Mayall, D. G. Phillips, I. M. Robertson, R. A. Syed, R. Thomas.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

The Dr. Jessie Macgregor Prize in Medical Science has been awarded to Dr. Susanne Jean Paterson for her work on the therapeutic uses of progesterone. The value of the prize is £50.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At the quarterly meeting of the Council, held in the College House, London, W., on July 23, with the President, Sir Ewen Maclean, in the chair, the following officers were elected to take office at the October meeting of the Council:

President: Professor W. Fletcher Shaw. *Vice-Presidents:* Professor R. W. Johnstone, Professor Miles H. Phillips. *Honorary Treasurer:* Mr. Eardley L. Holland. *Honorary Librarian:* Mr. Frederick Roques. *Honorary Secretary,* Mr. G. F. Gibberd.

The following were admitted to the Fellowship:

M. W. B. Bulman, Norwich, L. G. Phillips, London.

The following were admitted to the Membership (*in absentia*):

F. G. McGuinness, Winnipeg, G. J. Strean, Montreal.

The following were elected to the Membership:

A. C. Belfield, New Zealand, Muriel S. Brander, India, W. M. Capper, Bristol, P. G. Charlewood, India, J. C. Coetzee, South Africa, Gladys S. Cunningham, China, J. B. Dewar, Edinburgh, J. Edis-Myers, India, Ll. M. Edwards, London, A. B. Evans, London, J. G. Gallagher, Dublin, Agnes J. Herring, Dundee, R. E. Hirson, Manchester, D. F. Lawson, Australia, T. E. Lennon, Liverpool, Mary H. Mayeur, London, C. R. Morison, Harrogate, H. A. Rippiner, Bradford, Dorothy A. Sharpe, London, P. V. Venkatswami, India, H. S. Waters, India.

Medical Notes in Parliament

Both Houses of Parliament were occupied this week in clearing away arrears of business before the Recess, which was due to begin on July 29. On the previous day a debate was arranged in the House of Commons on health administration. The Parliamentary Medical Committee also arranged to meet before the Recess.

Two members of the Parliamentary Medical Committee, Sir Francis Fremantle and Dr. Haden Guest, were able to accept the invitation of the Council of the British Medical Association to attend the Annual Representative Meeting at Plymouth.

On July 12 five members of the Parliamentary Medical Committee and two miner M.P.s were received by Captain Crookshank, Secretary for Mines, and Sir Alfred Faulkner to discuss rheumatism among coal-miners and its treatment. The Minister made it plain that his Department would not be interested in a scheme for the general health of the people or with merely experimental work, but said that if proposals to be submitted could be shown to be for the treatment of conditions peculiarly affecting miners the Miners' Welfare Committee might then be able to interest itself in them. He suggested that in the first instance the Miners' Health Research Board should be approached. Sir Francis Fremantle undertook to convey this suggestion to the Empire Rheumatism Council, with whom he is now in touch.

The National Health Insurance (Medical Benefits) Regulations (Scotland), 1938, were laid on the table of the House of Commons on July 25.

The Report of the Board of Control for 1937, Part I, was presented to Parliament on July 26.

Lord Horder on Quack Medicine Trade

In the House of Lords on July 26 Lord HORDER called attention to the enormous growth in the quack medicine trade and to the incongruity of exercising no control over the deleterious effects of such trade upon health at a time when a serious effort was being made to improve national fitness. He also moved for papers. He said he had been told that if he, a doctor, raised this question he would be charged with trying to create a monopoly for his own profession and with depriving the poorer classes of cheap cures. If there was any monopoly it lay, in his view, with the trade that bled the public of £25,000,000 or £30,000,000 a year—nearly as much as the total spent on all our hospital services. He was seeking to break up a formidable and largely unscrupulous monopoly which, judging from the exclusion of patent and proprietary medicines and foods from the Food and Drugs Bill, successive Governments seemed almost to go out of their way to guard. If the doctor thought only in terms of hard cash he would benefit from this unprincipled trade, which eventually brought him more patients; ultimately even the undertaker benefited sooner and oftener than he need. Only now was there something better to put in the place of these dubious "specifics." We had the finest health services in the world. The slogan "Use your Health Services" was one of the most intelligent he had heard. His main reason for pressing the matter at this time was his concern for the success of the national fitness movement. For every £100 the Government spent in making the people health-conscious the quack medicine mongers paid £1,000 in making them disease-conscious. A few patented and proprietary things were good, and the claims made for them reasonable; a great many did little good or harm, and were sold at fantastic prices; and now and again something was sold that did definite harm. There were an enormous number of preparations that were fraudulent in varying degree. The great increase in advertising media was capable of appalling results in its mass suggestion on the country's health and morale. The advertisements had become a graver danger than the medicines they served.

The debate was continued by Lord ADDISON.

Viscount GAGE said that investigation had borne out the fact that improper use of substances in themselves harmless was a distinct danger to the health of the country and handicapped the work of the medical profession. He was ready to agree that it might constitute an obstacle to national fitness. The problem of the dangerous drug had been solved, except possibly for new drugs which were being put on the market. It had been said that the public were being used as a guinea-pig by unscrupulous manufacturers. He was informed that there was no method of foretelling the effect of some compounds, and that the effects on the human body could only be ascertained by experiment. That constituted a positive danger, but it was difficult to put absolute restriction on new inventions. The majority of the substances were made by firms of the highest repute, which, in their own interests, saw that the precautions taken were very complete.

The real difficulty arose from products and substances which were not in themselves harmful, but the improper use of which constituted a danger. Aspirin, used properly, provided relief from a number of minor ailments, but used to excess it was not beneficial. The inherent difficulty in dealing with certain substances was that the real fault lay with the individual who used them. If people did not use the immense State-assisted medical schemes, and preferred to diagnose and treat their own complaints, it was largely their own responsibility if they suffered in consequence. They were encouraged to do so by very carefully worded advertisements. In theory there was a case for controlling the advertisements, but it was not easy to design forms of words which could not be evaded. He was not attempting to exclude the possibility of some legislation on certain lines suggested, but it was difficult to guarantee that it would be effective. Repression alone was one of the most dubious of all lines of progress. The Minister of Health would examine what Lord Horder had said and see if anything could be done to incorporate in the educational side of the national fitness movement some warning against the abuses of drugs generally. Perhaps Lord Horder might still be unconvinced by his reply. If so, possibly he would like to have a try at legislating himself. In regard to legal matters the Government would be pleased to place all their resources at Lord Horder's disposal, but on medical matters they had no higher sources of information than Lord Horder himself commanded. The Government's attitude must, to some extent at any rate, be dictated by public opinion, because in these matters the public must have the last word. The Government were perfectly prepared to lay any papers for which Lord Horder might wish.

Lord HORDER asked leave to withdraw his motion for papers, and this was agreed to.

Abortion and the Law

Sir HENRY MORRIS-JONES, on July 25, asked the Minister of Health whether his attention had been directed to the recent acquittal at the hands of the jury of Mr. Aleck William Bourne, who was charged at the Old Bailey with unlawfully using an instrument with intent to procure the miscarriage of a girl of 14 years; and whether, as this was a test case, he intended introducing legislation to clarify or amend the law dealing with such offences.

Dr. ELLIOT: Yes, Sir. My attention has been drawn to this case. I am not in a position to make any statement pending the issue of a report by the Interdepartmental Committee, which is investigating this and other matters concerning abortion.

Sir HENRY MORRIS-JONES asked if Dr. Elliot was aware that during the hearing of this case the defendant stated in evidence before the court that had the subject of the operation been mentally defective he would not have operated; and was not defective mentality a case of extreme ill-health also?

No answer was given to this question.

On July 25 Mr. MAGNAY asked the Minister of Health if he was prepared to bring in a regulation requiring all members of the medical and nursing professions to certify and notify to the medical officers of health all operations for abortion, in view of the fact that such operations differed from others in that the life of another was involved.

Dr. ELLIOT: This is among the matters which are under consideration by the Interdepartmental Committee on Abortion, and I am unable to make any statement at the present time.

Mr. MAGNAY: In view of the grave concern throughout the country on this matter, will the right hon. gentleman take care to make representations to the committee to show clearly that this sort of thing is not a private misdemeanour but a deadly national crime?

Dr. ELLIOT: An influential committee has been considering this for some time, and I have no doubt it will take all these matters into consideration.

Mr. LOGAN: I take it that no recommendation will alter the law with regard to murder and the taking of life?

Progress of Bills

The Royal Assent was given on July 13 to the Street Playgrounds Act, the Housing (Agricultural Population) (Scotland) Act, the Children and Young Persons Act, the Baking Industry (Hours of Work) Act, the Mental Deficiency Act, the Inheritance (Family Provision) Act, and other Acts.

The Registration of Stillbirths (Scotland) Bill was read a third time in the House of Lords on July 20.

On July 21 the House of Lords agreed to the Commons' amendments to the Food and Drugs Bill.

The Milk (Extension and Amendment) Bill and the Finance Bill were read the third time and passed in the House of Lords on July 25.

The following day the Commons' amendments to the Young Persons (Employment) Bill were agreed to, and the Holidays with Pay Bill passed through Committee.

The Annual Report of the Chief Inspector of Factories and Workshops for 1937 was presented to the House of Commons on July 15.

A Prohibition of Vivisection on Dogs (Scotland) Bill was introduced into the House of Commons by Mr. Mathers on July 26, and was read a first time.

Health and Education Services in Scotland

Estimates for the Department of Health, Scotland, were debated by the House of Commons on July 20. Mr. COLVILLE said the period he had to review fell entirely within the term of office of Dr. Elliot. The House knew the keen interest which Dr. Elliot, as Secretary of State for Scotland, took in health matters. These estimates included a new item of £40,000 for grants under the Maternity Services Act passed last year. In public health Scotland was going forward. It had in the spring the worst influenza epidemic since 1929, yet the general death rate had remained practically the same. Infant mortality fell from 82.3 to 80 per 1,000, and the figures for the first quarter of 1938 were still better. Most welcome of all was the fall in the maternal mortality rate from 5.6 per 1,000 registered births in 1936 to 4.8 per 1,000 in 1937. The 1937 figure was the lowest recorded in Scotland this century. These figures should be an incentive to further effort, in which the Maternity Services (Scotland) Act would be of great help. The local authorities were pushing on with the preparation of schemes, and he hoped that soon every mother in Scotland could secure the services of midwife, doctor, and, if necessary, consultant. The school health service was working the conception of health into the whole of school life, and the 90,000 children who left school yearly in Scotland were fitter than previous generations were. The Insurance Act passed last year had enabled the Department to link up the school health service with the insurance medical service, and links were being established with the industrial health service under the Factories Act. This medical service was given in Scotland by about 2,000 doctors, who, under a new scheme organized by the Department, received opportunities for postgraduate courses. Under the Insurance Act it had been found that about two-fifths of the total sickness among insured persons was accounted for by those who were ill for more than a year. The Department of Health, with the co-operation of insurance doctors and of the approved societies, had begun an investigation of this chronic sickness in such a way as to bring the services of the regional medical officer and the specialist to bear on individual cases. In that way they hoped to help the individual case and to discover facts on the handling of chronic sickness generally. Other services contributed to the whole health effort. For example, tuberculin-tested cows in Scotland had increased from 20,459 to 30,002. Since the post-war housing effort began 290,000 houses of working-class type had been built in Scotland, 235,000 of them with State aid, but 250,000 houses were still needed. In the first half of 1937 local authorities completed 5,973 houses; in the first half of 1938, 9,095 houses. Since 1935 the Department had refused to approve the building of houses with less than three apartments, but he proposed to authorize the erection of two-roomed houses up to the number ascertained to be necessary for old people.

Mr. TOM JOHNSTON moved a reduction of the vote, remarking that 300,000 households in the burghs had no lavatory accommodation. Sir ARCHIBALD SINCLAIR said a grant of £50,000 yearly in aid of the statutory health services in the Highlands and Islands had been recommended by the Departmental Committee on the Scottish Health Services, and should be implemented.

Mr. LEONARD spoke of dental defects among school children, and suggested that these could be abated by greater attention to the diet of pregnant mothers and younger children. He was advised that the Notification of Births Act, 1915, would permit local authorities to pay attention to this.

After further debate on housing and on water supply, Mr. WEDDERBURN replied for the Department, and the motion to reduce the Vote was defeated by 162 to 111.

Medical Examinations of School Children

On July 21 Mr. WEDDERBURN moved a Vote for Public Education in Scotland. He said that the year 1939–40 would find education authorities generally prepared to make effective provision for the children between 14 and 15, who, after September 1, 1939, would continue at school. There must then be additional accommodation for physical education. Considerable progress had been made in providing gymnasia, swimming pools, and playing fields. Continuation classes in physical education were expanding. "Keep fit" classes, chiefly for women, were successful.

In moving a reduction of the Vote Mr. WESTWOOD said the school health service had largely fulfilled its purpose of becoming one of the main preventive health services. At present children were examined as a routine thrice during school life: at entry at age 5, at age 9, and before leaving

school—about age 13. Now that health and education authorities were usually the same, age 5 had no special significance, and the routine medical examinations could be cut down to two, at age 7 and age 13. This would release some of the medical staff for a pre-school medical examination to discover defects which should be remedied before the children entered school. Mr. TOM JOHNSTON said Mr. Colville was, for the first time, giving monetary grants to two Universities—Edinburgh and Glasgow—out of the Education (Scotland) Fund.

Mr. COLVILLE said 27 per cent. of 180,482 children in Glasgow schools received milk free on March 31, 1938. It was not necessary that a child should have a medical certificate that it was in need of food before food was provided. Many children were provided with food on the report of the head master or teacher.

The motion to reduce the Vote was defeated by 171 to 102, and the House went on to discuss the Vote for the Scottish Office. On this Mr. COLVILLE gave an account of work done under the National Fitness Council. He mentioned the expenditure on juvenile welfare, and said that he desired to extend the system of probation for adult and juvenile offenders in Scotland.

Certification of Criminal Lunatics

Mr. NEIL MACLEAN moved a reduction of the Vote, and pointed out that in a recent reply to a question in the House it had been stated that a lunatic had been certified by two medical officers of the Department. Mr. Maclean contended that this was against the intention of an amendment made to the Act passed for the building of a new criminal lunatic prison in Scotland. The amendment proposed that one of the persons certifying should not be from the Department, but someone from outside, preferably a medical man who knew something of the family history of the individual being certified. That proposal had been accepted by the Government and the House, but he was now told that it only applied to persons likely to be committed to the new Scottish criminal lunatic prison at Carstairs, which was not yet completed.

Mr. CASSELLS said he had been shocked to be told in reply to a question that no instructions had been issued to courts in Scotland concerning the examination of juvenile delinquents by psycho-analysts. He had merely been told that on every occasion where there was a suspicion of defect or abnormality an examination was to be made.

Mr. WEDDERBURN, replying to the point raised by Mr. Maclean, said that at Barlinnie and Perth prisons certificates of insanity were normally given by two prison doctors employed at those prisons. At Edinburgh prison the certificates were normally given by the prison doctor and by the medical adviser to the Prisons Department. At all other prisons the certification was normally by the prison doctor and a doctor independent of the prison service. When the Criminal Lunatics (Scotland) Act came into operation on a date to be appointed by the Secretary of State it would remain competent to remove a person from prison to the new criminal lunatic asylum on the certificates of two doctors in the employment of the prison authorities, but it would be open to that person, or to someone on his behalf, to demand that he be examined by an independent doctor. Secondly, no person could be detained in the criminal lunatic asylum after expiry of his sentence unless a medical certificate was granted by a doctor who was not a salaried officer of the Prisons Department.

The motion for reduction of the Vote was rejected by 157 to 98.

Divorce in Scotland Bill

The Divorce (Scotland) Bill was read a third time by 77 to 19 in the House of Commons on July 12. Earlier in the sitting, at the close of the Report stage, the words "and nullity of marriage" were deleted from the title of the Bill.

In the House of Lords on July 19 the Commons' amendments to the Bill were agreed to. In regard to the deletion of Clause 4, which dealt with nullity, Lord Alness said there was a strong feeling in the Scottish Grand Committee against the retention of the clause. Its deletion would not affect the main purpose of the Bill, which was to reform the law of divorce.

Maternal Mortality Rates

On July 12, Mr. SANDERS asked the Minister of Health the names of the countries with a lower maternal mortality rate than that of Great Britain. Dr. ELLIOT, in circulating this tabulated statement, said that the figures in it, except where otherwise shown, were for 1935. The comparability of the published rates of maternal mortality was, however, affected by many factors (for example, differences in methods of classification and in completeness of national arrangements for the collection of vital statistics).

Maternal Mortality: All Causes. Rates per 1,000 Live Births

Great Britain	4.3	Iceland (1934)	3.1
England and Wales	4.1	Italy	3.0
Belgium	4.2	Japan (1934)	2.8
Denmark	4.0	Netherlands	3.0
Spain	3.4	New Zealand	4.2
Estonia (1934)	3.4	Norway (1934)	2.9
Finland (1934)	2.7	Sweden (1933)	3.1
France	2.3	Uruguay (1934)	2.3
Hungary (1934)	3.8		

Cost of Health Insurance for Dependants

Dr. ELLIOT on July 14 told Mr. Graham White that on the assumption that the term "dependants" was restricted to wives and to children up to the school-leaving age, the cost of providing medical benefit to the dependants of insured persons would be about £10,000,000 a year if the annual charge per head were the same as that now applicable to insured persons themselves.

Medical Examining Bodies

Mr. SORENSEN on July 14 asked whether, "in view of the multiplicity of examinations and examining bodies relative to the training and professional status of medical practitioners," Dr. Elliot would consult with the British Medical Association and other medical and surgical organizations about the co-ordination and simplification of such training, with a view to considering the institution of a State medical examination and establishment of a State medical training hospital. Dr. ELLIOT, replying for the Lord President of the Council, said there was no present prospect of the introduction of legislation which would be necessary for this purpose.

Medical Refugees

In a reply to Mr. Riley on July 14 Sir SAMUEL HOARE said it had always been recognized that a policy of unrestricted admission to this country for qualified doctors or dentists would be out of the question. Only a small number of foreign practitioners could be absorbed into the medical and dental professions. It would be necessary to select this number with care. To assist him in making this selection it was proposed that applications should be examined by a committee on which there would be representatives of the medical and dental professions and of the refugee organizations. He was not informed that there was a shortage of medical practitioners in this country.

Mr. MATHERS asked if Sir Samuel had received intimation of the concern of doctors practising in this country about the numbers already admitted to practice.

Sir SAMUEL HOARE said he had had discussions with representatives of the principal medical organizations, who agreed with him that discrimination must be exercised. The Home Office would be able to admit a limited number and still maintain effective discrimination.

Replying to Sir HENRY MORRIS-JONES, who asked about the admission of medical practitioners of Austrian nationality, Sir SAMUEL said he had agreed with representatives of the medical profession that the number of Austrian doctors who could be absorbed into the profession was limited. Before deciding on a precise figure he would await further opportunity of ascertaining how many of the applicants possessed special qualifications or special claims to consideration. In reviewing applications the Home Office would consider what

arrangements the applicant proposed for acquiring the necessary qualification for practising in this country, and in what part of the country he proposed to settle. It must take into account that, as Sir Henry Morris-Jones pointed out, many of the foreign practitioners were able to practise in this country after a short period of study. Sir Samuel added that with co-operation between the medical profession, the refugee organizations, and the Home Office he believed that refuge could be afforded to a number of refugees without flooding the profession in this country with doctors who were not required.

Dr. SUMMERSKILL said many doctors in this country believed that the Austrian doctors could make a helpful contribution to medical knowledge here.

Sir SAMUEL HOARE said that was the fact, and showed how necessary it was to deal with the applications case by case on their merits.

On July 20 Mr. HIGGS put a question which asserted that medical practitioners were very concerned at the intention of the Home Office to admit further alien doctors into this country and allow them to practise here. Mr. KIRBY, on the same day, asserted that "the medical profession strongly resents their entry and consequent competition with them on a lower standard of training than is required here."

Lord WINTERTON referred the questioners to replies previously given to Sir Henry Morris-Jones and others.

Answering a general question by Mr. Riley on July 21, Sir SAMUEL HOARE said traditional hospitality would be extended so far as was compatible with our social and economic conditions to persons obliged to leave their own countries on political, racial, or religious grounds, but individuals who came here must be carefully selected.

Nursing Homes Registration in Scotland

Lord Alness, in the House of Lords on July 14, moved the second reading of the Nursing Homes Registration (Scotland) Bill, which had, he said, been piloted through the House of Commons by Sir Douglas Thomson. Its purpose was to require every nursing home in Scotland to be registered and to make it an offence in that country to carry on a nursing home without registration. In Scotland maternity homes had been registrable since 1927, but nursing homes had not been. The Bill proposed to repeal the Act of 1927 and to make all nursing homes in Scotland subject to one code, as in England to-day. This would bring the law of the two countries into complete harmony.

The Bill was read a second time without a division.

On July 19 the Bill was considered in committee. An amendment by Lord Alness, to make it clear that a qualified nurse might act as an officer authorized by a local authority to inspect a nursing home, was agreed to.

Lord Alness moved a new clause, giving power to the Department of Health for Scotland to exempt any nursing home carried on in accordance with the practice and principles of Christian Science from the requirement that the home should be in charge of either a registered medical practitioner or a qualified nurse who was or would be resident in the home. He said that the clause merely echoed the corresponding provision in the English Statute of 1927, which was re-enacted in the Public Health Act, 1933. The new clause was drafted in the Department of Health for Scotland and came before the House with their sanction. The clause did not exempt these nursing homes from any of the structural or sanitary requirements which the Board of Health might impose, and merely related to the requirements about doctors and nurses. The English Act had worked smoothly and well.

The new clause was agreed to, and the Bill passed through committee.

The Bill was read a third time and passed on July 25.

Immunization against Diphtheria in Scotland.—On July 12 Sir THOMAS MOORE asked the Secretary of State for Scotland what assistance was provided by his department for the immunization of school children against diphtheria; and whether, in view of the danger of epidemics of this disease, progress in this matter could be accelerated. Mr. COLVILLE said that the Department of Health had laid stress in their annual reports on the value of immunization of children against diphtheria. A number of local authorities, with the encouragement of the Department, had proceeded with the formulation of schemes for securing such immunization, and the Department's medical officers had co-operated with medical officers of health to that end.

Recall of Patient on Licence.—On July 12 Mr. LOGAN asked the Minister of Health why a man named Thomas Fisher, after being out of Calderstones Institution for five years, was recalled; and if he was aware that the doctor said he could be considered for release if he had a permanent job.

Mr. BERNAYS said that the authorities at Calderstones recalled the patient because questions had arisen as to the suitability of the occupation and the adequacy of the supervision available at his home. The Board of Control, however, on June 21 last, asked the committee to reconsider the matter and to furnish their observations on the suitability of Mr. Fisher for discharge. As a result it had been decided to discharge the patient. Mr. Bernays added that the Minister of Health appreciated Mr. Logan's anxiety that patients on licence should not be recalled unnecessarily. The Board of Control had, in fact, issued a circular, and the Minister was in communication with the authorities concerned.

Somnifaine Narcosis in Dementia.—Dr. ELLIOT stated on June 14, in reply to Mr. Sorensen, that it was not proposed to issue a report on the treatment of dementia by somnifaine narcosis. The report on cardiazol treatment would be published shortly.

Bragg-Paul Respirator.—Answering a question on July 14, Dr. ELLIOT said he knew that a broadcast on July 8 asked listeners whether they knew where a Bragg-Paul respirator, or "iron lung," could be found to save the life of a child. He regretted a respirator could not be found in this case. A certain number of respirators were already available at hospital centres, and his medical officers in their visits of inspection were prepared to advise local authorities upon the question of providing them in suitable centres. Under the circumstances and having regard to the infrequent occasions on which these appliances were required, provision by Government funds of a number of such appliances would not be justified. In a supplementary question an assertion was made that there were eighteen such respirators in Great Britain.

Rheumatic Fever on a Training Ship.—There have been thirty-one fresh cases of rheumatic fever amongst the trainees in the *Caledonia* at Rosyth since April 1 last, a ratio of approximately 18 per 1,000 strength. The sewage arrangements both on board the *Caledonia* and on shore have been under continuous observation by the departments concerned, and, except for one temporary breakdown, against the recurrence of which steps have been taken, no deficiency has been reported.

Nursing Services Inquiry.—The interdepartmental committee on the nursing services hopes to make an interim report before the end of the year. It is still hearing evidence.

Notes in Brief

A report from the departmental committee on the use of celluloid in the manufacture of toys, fancy goods, etc., was presented to Parliament on July 6.

Correspondence relating to the welfare of women in tropical Africa was presented to Parliament on July 5.

Replying to Dr. Summerskill, Sir Samuel Hoare says the removal of women from Holloway Prison to a modern prison outside of London is under consideration.

The Scottish Office has recommended to all courts in Scotland that on every occasion where there is suspicion of defect or abnormality a medical and mental examination should be conducted by the most skilful specialist available.

No. 28.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 16, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 126 great towns (124 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns (9 in 1937) in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1929-37 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	20	2	9	2	—	22	2	6	1	—		
Deaths		—	1				1	3				
Diphtheria	1,075	153	121	58	24	979	125	145	36	19	912	158
Deaths	26	3	2	4	—	17	1	3	2	—		
Dysentery	39	16	25		—	21	4	8	1	1		
Deaths				—	—				1	—		
Encephalitis lethargica, acute	3	—	—		—	2	—	—	1	—		
Deaths		—					1					
Enteric (typhoid and paratyphoid) fever	26	5	3	1	2	45	5	4	7	—	54	—
Deaths	2	—	—	—	—	3	—	—	—	—		
Erysipelas			58	9	1			70	1	4		
Deaths		1					1					
Infective enteritis or diarrhoea under 2 years												
Deaths	61	17	14	5	—	39	12	9	3	3		
Measles			109		4			63		—		
Deaths	5	1	1	—	2	15	—	1	1	—		
Ophthalmia neonatorum	94	12	39		—	104	5	35		—		
Deaths												
Pneumonia, influenzal‡	528	37	9	1	8	510	47	3	1	1	533	42
Deaths (from influenza)	23	1	3	—	1	10	4	—	—	—		
Pneumonia, primary			143	13				105	7			
Deaths		11		13	8		7		1	6		
Polio-encephalitis, acute	1	—				1	—					
Deaths		—					—					
Poliomyelitis, acute	8	1	3		—	8	—	1		—		
Deaths		—					—					
Puerperal fever	6*	6	7		1	32	4	17	1	—		
Deaths		—					1†					
Puerperal pyrexia	195	22	13		—	132	14	42		—		
Deaths												
Relapsing fever	—	—			—	—	—	—		—		
Deaths												
Scarlet fever	1,740	168	310	73	56	1,665	184	334	69	43	1,673	247
Deaths	3	—	1	—	—	3	1	—	1	—		
Small-pox	—	—	—		—	—	—	—		—		
Deaths	—	—		—	—	—	—		—	—		
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths				—	—				—	—		
Whooping-cough			25		3			42		4		
Deaths	6	2	1	1	—	13	4	3	2	—		
Deaths (0-1 year)	290	44	42	15	24	296	58	57	24	17		
Infant mortality rate (per 1,000 live births)	48	36				50	48					
Deaths (excluding stillbirths)	3,856	686	553	152	121	3,747	705	534	163	115		
Annual death rate (per 1,000 persons living)	9.5	8.7	11.3	10.2	10.7	9.3	8.9	10.9	11.1	11.0		
Live births	6,907	1,285	876	430	229	6,780	1,244	911	343	240		
Annual rate per 1,000 persons living	17.0	16.4	17.8	29.1	20.3	16.8	15.7	18.6	23.4	23.0		
Stillbirths	254	32				293	41					
Rate per 1,000 total births (including stillborn)	35	24				41	32					

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

† Death from puerperal sepsis.

‡ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

EPIDEMIOLOGICAL NOTES*

An Outbreak of Poliomyelitis

A small outbreak of poliomyelitis in Essex was reported to the Ministry of Health early last week and is under investigation by one of the medical officers of the Ministry in conjunction with the local medical officers of health. Up to July 27 18 cases have come to notice: 11 in Halstead Rural District, 3 in Braintree, and 4 in Dunmow Rural District. There has been one death. Four of the cases have occurred in a boarding-school for boys. The ages of the persons affected range from 3 years to adolescence. One case has occurred in an adult of 26 years of age. The local health authorities are taking all necessary precautions and the county medical officer of health for Essex is co-operating with the medical officers of health concerned. Dr. Norman Smith, a medical officer of the Ministry of Health, is assisting the local health authorities and is visiting the affected districts. Small outbreaks of this disease are not uncommon in this country, and an average number of 10 or 12 cases a week are notified. A memorandum of the Ministry of Health on acute poliomyelitis, which includes advice on precautionary measures against infection, can be obtained from H.M. Stationery Office, price 2d.

Diphtheria and Scarlet Fever

Notifications of diphtheria in England and Wales during the week under review rose from 1,001 to 1,075, and in London from 127 to 153. There was a decided decrease in the notifications for Scotland—121 as against 151 recorded in the previous week—but in Eire and Northern Ireland there were small increases—58 compared with 49 and 24 compared with 21, respectively. Deaths from diphtheria in the 126 Great Towns of England and Wales rose from 22 to 26 and in London from 2 to 3. Of the 26 deaths recorded in the 126 Great Towns 5 (1) occurred in Liverpool, 3 (1) in South Shields, and 2 each in Chester (0) and Sheffield (1). There were 2 deaths from diphtheria in the 16 principal towns of Scotland during the week under review—1 each in Glasgow and Edinburgh. There was a slight decrease in the number of notifications of scarlet fever in England and Wales during the week—1,740 compared with 1,751—but in London an increase was noted—168 (157). In England and Wales the figures were in excess of the median value for the last nine years, but in London they were considerably less. There were 3 deaths from scarlet fever in the 126 Great Towns of England and Wales during the week under review, compared with 2 in the previous week. Notifications of scarlet fever in Scotland rose from 295 to 310 with 1 death (in Greenock). In Eire they remained at 73, while in Northern Ireland they fell from 71 to 56 in the week under review.

Primary and Influenzal Pneumonia

There was a rise in the notifications of primary and influenzal pneumonia in England and Wales during the week under review—500 to 528—but in London the figures dropped from 42 to 37; both these figures are below the median values for the last nine years.

Measles and Whooping-cough

The incidence of measles in England and Wales continues to decline. Deaths in the 126 Great Towns have fallen from 7 to 5 during the week under review, one of them being in London. The number of cases reported in the L.C.C. elementary schools during the week was 176, compared with 250 in the previous week, while the average daily admissions to the L.C.C. fever hospitals fell from 12 to 9 for the week under review. Notifications dropped in nine of the metropolitan boroughs in which measles is notifiable and rose in Fulham—10, as against 9 in the previous week—and Greenwich—22, as against 19. In Scotland the figures for measles rose during the week from 91 to 109; of these 54 (19) were in Kirkcaldy, 22 (18) in Falkirk, and 8 (23) in Dunfermline. There have been more deaths from whooping-cough than from measles during the week—6 for England and Wales, as against 5 for measles, and 2 for London, as against 1 for measles; in Scotland there was 1 death each from both diseases, in Glasgow and Dundee respectively.

Cholera

A considerable increase in the incidence of cholera has been reported in China during the week. For the week ended July 16 in Shanghai there were 418 cases with 152 deaths, compared with 225 cases in the previous week; in Hong Kong in the same week there were 60 cases with 53 deaths, compared with 43 cases and 32 deaths in the previous week. The Chinese Health Administration, which has been working in close co-operation with the League of Nations, has asked the League for 6,000,000 doses of cholera vaccine. In response to the appeal Australia and Ceylon have each sent 500,000 doses, the American Red Cross 3,000,000 doses, Turkey and Rumania each 1,000,000 doses, Yugoslavia and the Pasteur Institute at Hanoi each 500,000 doses. Smaller amounts have also been received from the Serum Institute at Copenhagen, the Egyptian Ministry of Health, and the Institute of Bacteriology at Buenos Aires. In British India cholera has been declining in recent weeks, with the exception of Berar with 2,825 (1,959) cases and Madras 434 (414) cases.

Small-pox

A review of the epidemic of small-pox at Hong Kong has revealed that nearly 2,000 persons lost their lives this year. The total figures were 2,284 by the end of May, and 1,920 patients died (case fatality, 84.1 per cent.). Over 75 per cent. of the fatal cases occurred among children. The epidemic reached its peak in the middle of March, when an average of 40 cases daily were recorded, but for the last few weeks only one or two cases have been reported.

* Except where otherwise mentioned figures in parentheses refer to the week preceding the one under review.

Medical News

The House of the British Medical Association, including the Library, will be closed from 5 p.m. to-day (Friday, July 29) to 9 a.m. on Tuesday, August 2 (Library 10 a.m.).

All who contemplate attending the third international congress for microbiology, New York City, September 2–9, 1939, are asked to send their names to Dr. R. St. John Brooks, secretary of the British National Committee (Lister Institute, Chelsea Gardens, London, S.W.1). Some knowledge of the numbers likely to make the journey will greatly facilitate arrangements for securing advantageous terms of transport from shipping companies.

The first number has been published this week of the *British Journal of Rheumatism*, edited by Dr. M. B. Ray and described in the subtitle as an independent review mainly devoted to the practical and clinical aspects of rheumatism. Lord Horder writes a short "send-off," Dr. Fortescue Fox follows with a foreword, and there is an editorial outlining the aims of the new quarterly publication (price 12s. 6d. per annum; single copies 3s. 6d.).

The issue of *Paris Médical* for July 16, which is devoted to psychiatry, contains the proceedings of the seventeenth international neurological reunion held in Paris on May 31 and June 1.

During the State visit of the King and Queen to Paris last week Her Majesty, accompanied by the Duchess of Northumberland, inspected the Hertford British Hospital. This institution, with forty beds, is in the Rue de Villiers. Founded in 1877 by Sir Richard Wallace, it was made over to the British Government by deed of gift in 1892. Its object is to give medical care and relief to needy men and women from any part of the British Empire, but the original endowment only suffices now for one-third of the annual expenditure. The chairman of the hospital, Sir Alfred S. B. Tebbitt, presented members of the Committee of Management and the French visiting physicians and surgeons, headed by Dr. Charles Flandin, to the Queen before she made a tour of the wards.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS should be addressed to the Advertisement Manager. Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House, Tavistock Square, W.C.1.

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QUERIES AND ANSWERS

Mammary Cancer and the Menopause

Dr. R. ANDERSON (Birmingham) writes: For a long time I have been under the impression that women who suffer much from the flushings of the menopause are not so prone to breast cancer as those who don't. Yesterday I saw a woman who is suffering from a secondary growth after excision of the breast three years ago. She told me that she had had very few flushings, and that her mother, who died of breast cancer, also had very few. Judging by the treatment now advised for post-menopausal symptoms I suppose it is taken as proved that these are due to a diminution or lack of oestrone in the system. It would be interesting to know whether those women who do not suffer to any extent from flushings have an excess of oestrone. Dr. W. E. Gye (*Journal*, March 12, p. 551) states that oestrone injected into mice causes tumour formation not at the site of injection but in the mamma. Oestrone is evidently one of the factors concerned in the production of breast cancer, and I think, therefore, that a great deal of caution should be used in giving it. I would like to know whether any other reader has formed the same impression about the incidence of breast cancer.

Hormone Therapy of Prostatic Hypertrophy

"VRACH" (Cornwall) would like advice from any reader who has had personal experience of the treatment of prostatic hypertrophy with injections of testicular hormones. What dosage should be administered and at what intervals?

LETTERS, NOTES, ETC.

"Q" Fever in Queensland

The annual report for 1936–7 of the Health and Medical Services of the State of Queensland shows vital statistics which compare favourably with those of the other States of the Commonwealth. The crude birth rate was 19.7 and the death rate 8.78; the infant mortality rate was 36.20 per thousand. The respective figures for the Commonwealth of Australia as a whole were 17.13, 9.43, and 41.16. The report states that work on the unclassified fevers of the coastal districts of South Queensland proceeded steadily throughout the year, with special concentration upon the problems involved in two fever types, "Q" fever and seven-day fever. The latter is due to a leptospira of mild virulence. All the cases of "Q" fever occurred in men. Fifteen were employed in an abattoir, some were farmers or farm workers, one was a braceman employed on new sewerage construction, and one was a laboratory technician engaged in the actual study of the fever itself. The report describes at some length the clinical features of the disease and the results of laboratory investigation. The problem of leptospirosis was studied by the mobile unit attached to the Laboratory of Pathology and Microbiology, and it appears to be established that a mild leptospirosis is a not uncommon cause of illness in South Queensland, previously diagnosed as "coastal fever," influenza, or dengue. An appendix to the report is devoted to the hookworm campaign.

Parturition with Albuminuria and Raised Blood Pressure

Dr. C. DYSANT (Bromley, Kent) writes: The following case may perhaps be of interest. A multigravida aged 40, five previous confinements, began labour at 12 noon and was delivered at 1.30 p.m., one and a half hours later, of a 15 lb. male baby. She had been confined to bed for three weeks with albuminuria and blood pressure up to 174 mm. Hg systolic, 110 diastolic. The albuminuria cleared up, but the blood pressure varied, and was 170 mm. Hg systolic, 90 diastolic before confinement. There was no shock, and both mother and child are doing well.

Epsom College

Major W. L. GIFFARD, O.B.E., Secretary of the Royal Medical Foundation of Epsom College, writes: At the annual general meeting of the Governors of Epsom College held last month, after reference had been made to the kindness of the Editor of the *British Medical Journal* in publishing articles and notices about the Royal Medical Foundation and its aims, a resolution, as under, was unanimously passed by the meeting: "That the Annual General Meeting desires to place on record its appreciation of the kindness of the Editor of the *British Medical Journal* for his readiness at all times to publish notices regarding Epsom College and its Royal Medical Foundation."

Artificial Respiration Apparatus

Dr. D. EDGE (Medical Superintendent, Ladywell Sanatorium and Isolation Hospital) writes: In view of the demand for the artificial respiration apparatus miscalled "iron lung," may I be permitted to point out that there is one available at Ladywell Sanatorium and Isolation Hospital, Eccles New Road, Salford 5, Lancs.

*** An authoritative letter on the Bragg-Paul pulsator by Sir William Bragg appears this week at page 254.

Sterilization of Syringes

Dr. A. E. FINCKH (Sydney, N.S.W.) writes: I have been in practice as a clinical pathologist for over thirty years, during which time I have made thousands of venupunctures. Needles and syringes have always been subjected to boiling, being placed in cold water and brought to the boil. Not once have I experienced a mishap.

Medical Golf

Dr. A. Keith Forbes and Dr. A. J. Buchan each won two of the five events held by the Scottish Medical Golfing Society at its meeting on Prince's course (Sandwich) last week-end. Keith Forbes (16) won the bogey competition with a return of one up and the Silver Haggis (Eclectic) 64 net, while Buchan (7) took the stroke competition with 76 net and the Captain's Prize with 72 net. The four-ball event against bogey went to Drs. G. Gilchrist (6) and Norman Fleming (14) with a return of 9 up.

Corrigenda

A printing error which it is important to correct occurred in Dr. F. G. Hodson's article on "Measles" in the *Journal* of July 23 (p. 174). Owing to a misplaced line the inscription under Table V was without meaning. It should read: "100 per cent. infected; 0 per cent. escaped; no complications; 22 protected cases all had attenuated attacks."

Our recent notice of *The Diet for Expectant and Nursing Mothers*, published by the Food Education Society, erroneously named Miss J. Halford as the author. This little book is the work of the Society, and Miss Halford contributed a foreword.